SPRING MEADOW LAKE SITE
LEWIS AND CLARK COUNTY, MONTANA

OWNER/OPERATOR HISTORY
AND
CULTURAL RESOURCE INVESTIGATION

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INTRODUCTION

The Montana Department of Environmental Quality Mine Waste Cleanup Bureau (DEQ) intends to remove hazardous ore processing waste from Spring Meadow Lake Park and the Montana Wildlife Center during the summer of 2005. Recent tests have shown that there are elevated levels of arsenic, lead, and zinc in both surface and subsurface contexts.[1] Cleanup activities will involve excavation and removal of the contaminated material and replacement with clean fill as necessary.

Located at the west edge of Helena in Section 23, Township 10 North, Range 4 West, Spring Meadow Lake Park is a state facility administered by the Montana Department of Fish, Wildlife and Parks. Established about 20 years ago, today the park encompasses over 50 acres. It includes a picnic ground, swimming area with sandy beach, and hiking trails. The Montana Wildlife Center stands on an adjacent 5-acre parcel at the south edge of the park at the site of an historic foundry. The center, a recent addition to the state's holdings, is a wild animal care facility for creatures which have been injured or abandoned.

DEQ requires two different sets of information to comply with requirements of the Surface Mine Control and Reclamation Act and with the National Historic Preservation Act. First, it requires data to support a determination of eligibility for reclamation funding, and, second, it must determine if historic sites eligible for listing in the National Register of Historic Places will be impacted by the proposed reclamation project. To aid the agency in meeting its legislated responsibilities, Renewable Technologies, Inc. (RTI) signed a task order with DEQ to complete three basic tasks: a title search, preparation of an owner/operator history of the area, and cultural resource inventory and site evaluation. The study area for the project is a 56-acre parcel which encompasses the Montana Wildlife Center and all of Spring Meadow Lake Park except its far east edge which historically was and currently is undeveloped (Figure 1).

This report presents RTI's findings for the three tasks. It provides a chain of title which is illustrated with copies of deeds, and a table and flowchart summarizing those transactions. The owner/operator history includes a history of land use as gleaned from both deeds and available historical records. It also contains histories of corporations and partnerships who owned land and operated businesses in the project area. The cultural resource section of the report identifies three historic sites in the survey area, providing their histories and descriptions.

Practically, this report presents converging lines of evidence of the project area's industrial past. Beginning with erection of a foundry in 1892, industrial use of the area has included wire fence manufacture, ore processing, sand and gravel excavation, and asphalt and cement plant operations. Of particular interest are the two ore processing operations on-site, the first dating between 1910 and about 1915 when the Northwestern Metals Company tested a dry chlorination leaching plant to treat gold ore and the second between 1916 and 1920 when the New York-Montana Testing and Engineering Company installed gravity and flotation equipment to treat both gold-and-silver-

[1] Tetra Tech EM Inc., "Site Inspection and Hazardous Materials Inventory, Spring Meadow Lake Site, Helena, Montana" (Helena, submitted to Montana Department of Environmental Quality Mine Waste Cleanup Bureau, Helena, 2004).

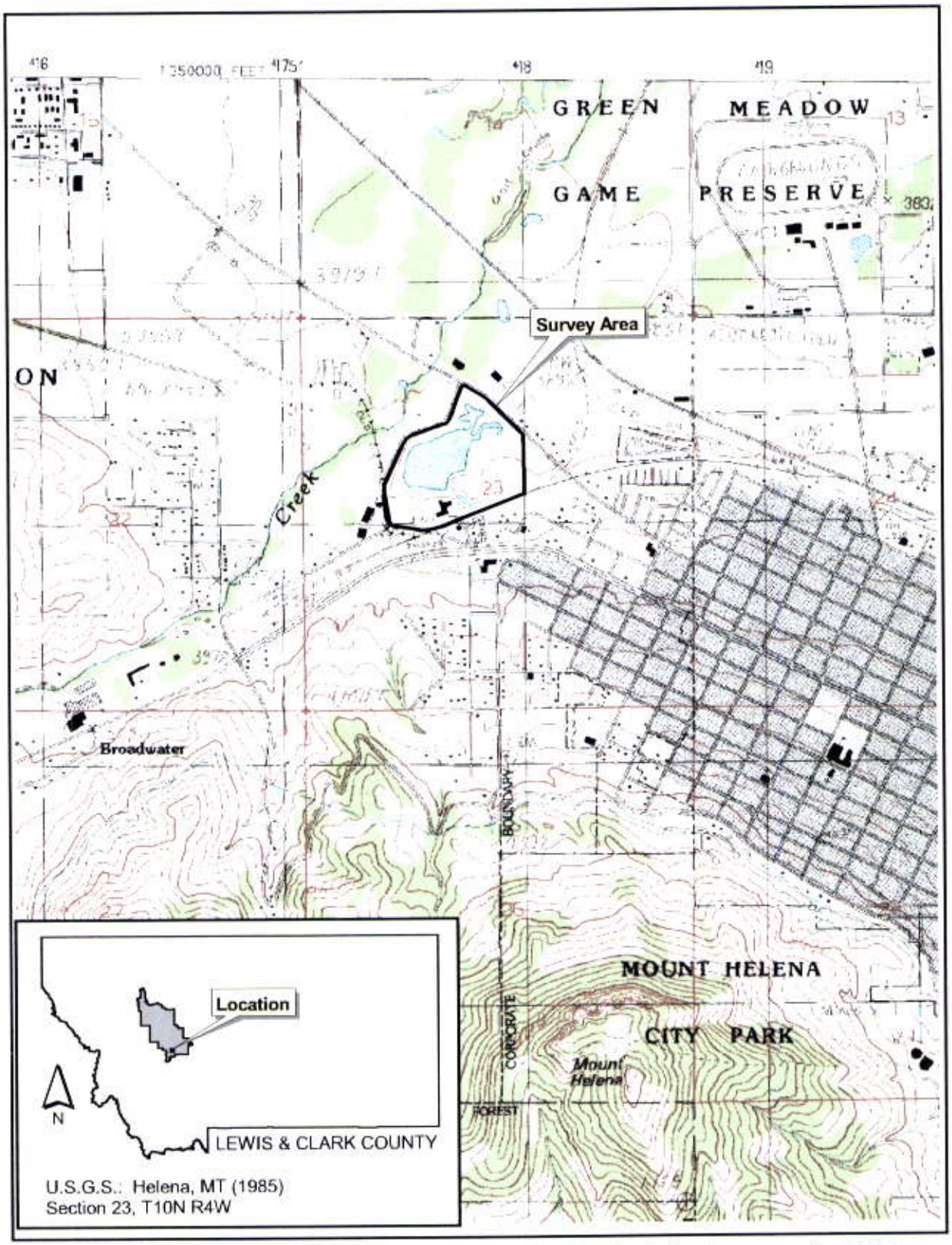

Figure 1. Portion of Helena topographic map showing Spring Meadow Lake site at west edge of Helena.

bearing and manganese ores. Because these two operations are the ones thought to have been responsible for the hazardous mill waste found on-site, they (especially the latter) are described here in some detail, while other industrial facilities receive less attention.

This report involves two main sections. After a brief description of the environmental setting and an explanation of the methodologies used for the title, history, and inventory tasks, RTI presents first the owner/operator history. It is followed by the section identifying the results of the cultural resource investigation. Appendices include copies of written documents used to prepare the owner/operator history only (A), deeds (B), pertinent corporate records housed at the Montana Secretary of State (C), and site forms (D). Readers will note that all citations referenced in the owner/operator history have corresponding documents in Appendix A, as is typical for such investigations. The standards of cultural resource reporting, however, do not require inclusion of cited documents, and that source material is not duplicated here.

ENVIRONMENT

Spring Meadow Lake is an artificial impoundment adjacent to Tenmile Creek at the south end of the Helena Valley. Mount Helena rises not far to the south, while the broad valley floor of the Missouri River lies to the north. Tenmile Creek, which joins with Prickly Pear Creek and then the Missouri several miles downstream, is a small but permanent stream. The water table is high in the project area, accounting for the accumulation of ground water in the former sand and gravel pit which is now Spring Meadow Lake.

The soils are of the Meadowcreek-Fairway complex, a very deep loam formed in alluvium. This complex occurs in areas of minimal ground slope, including floodplains.[2] Typical of its floodplain setting, the site area's soils support mainly xeric plant species. Willows, cottonwood trees, and possibly alder are common in and around the former gravel pit (Figure 2). On undisturbed ground at the pit edges, grass grows thickly and almost uniformly. At the east edge of the site, in a relatively undisturbed area formerly part of the undeveloped West Helena Townsite Addition, plant types include sagebrush, rabbitbrush, and grass, with considerably lesser amounts of baby's breath and knapweed, and occasional patches of wild rose (Figure 3).

Ground visibility at the time of the cultural resources field survey was variable. For the survey transects along the west edge of the property (see below), visibility was generally less than 1% due to thick grass and brush. At the east side of the property, ground visibility averaged between 5 and 10%. Snow cover was fairly minimal in the areas surveyed, amounting to less than 5% of the surveyed area, although at the south end of the property as much as 25% of the ground surface was covered with snow.

[2] U.S. Natural Resources Conservation Service, *Soil Survey of Lewis and Clark County Area, Montana*, Part 1 (Washington, DC: Government Printing Office, 2003), 123.

Figure 2. Photograph of south end of site area, showing edge of historic gravel pit and thick brush growing in pit area, facing north-northeast.

Figure 3. Another view of historic gravel pit wall, with former Stedman Foundry building in left background, facing west.

METHODOLOGIES

RTI's three tasks for the current project---title search, operating history preparation, and cultural resource investigation---involved different methodologies. Each is described briefly here.

To identify past owners of the Spring Meadow Lake site, RTI first examined deed records housed at the Lewis and Clark County Clerk and Recorder's Office. With minor exception, RTI limited its research to deeds, not searching the mortgage and miscellaneous indices. A handful of documents were obtained from sources other than the county courthouse. RTI received copies of patents from the state office of the Bureau of Land Management. The Lands Office of the Montana Department of Fish, Wildlife & Parks provided copies of a small number of deed or easement documents as well.

For this site, the ownership history is complicated by numerous subdivisions that the land underwent from its patent in 1870 and 1872 until just recently. Various parcels were typically described by metes and bounds, sometimes keyed to landmarks no longer present. To best understand ownership history, RTI grouped deeds in five groups, labeling them the Foundry, Coady, West Helena Townsite, Gravel Pit, and C Parcels. All deeds and other real estate documents were copied and organized chronologically according to one of the five parcels. Figure 4 shows the approximate positions of those parcels, while Figure 5 is the flowchart which summarizes land transactions for each of the five. That information also is summarized in a table contained in Appendix B of this report.[3]

RTI examined a variety of sources to prepare the operating history. At the campus library of Montana Tech of the University of Montana, RTI examined the Works Projects Administration's "Montana Mine Index: Various Mining Magazines" (ca. 1940), indices to the *Engineering and Mining Journal* from about 1916 through 1920, *Mineral Resources of the United States* and *Minerals Yearbook* together for the period from 1905 through 1922 and 1930-1955, the Montana Bureau of Mines and Geology's directories of Montana mines for the year 1919, and the *Mines Handbook* for the period 1910 through 1922. At the offices of the Montana Bureau of Mines and Geology, RTI reviewed the bureau's Mine Properties files and map collection, but found no documents pertinent to this site. In Helena, material reviewed at the Montana Historical Society Library included the subject vertical file (Spring Meadow Lake folder) and obituary files. The Mine Waste Cleanup Bureau of the Montana Department of Environmental Quality provided several relevant documents, including newspaper clippings, a copy of the Stedman Foundry National Register nomination, Sanborn maps, and the "Site Inspection and Hazardous Materials Inventory" for the Spring Meadow Lake site.[4]

RTI's investigation of corporate owners at the Spring Meadow Lake site was limited to those owners of the foundry and gravel pit parcels between 1892 and 1964. Those parcels involve most of the hazardous materials detected during recent testing.[5] The period from 1892 through 1964 encompasses all use of the property from its first industrial business through the last major sand and gravel pit operation. It also includes the only times when ore processing was known to have been

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[3] Readers should note that the chain of title which RTI prepared has minor gaps that do not detract substantially from overall product accuracy.

[4] Tetra Tech EM Inc., "Site Inspection and Hazardous Materials Inventory."

[5] Ibid.

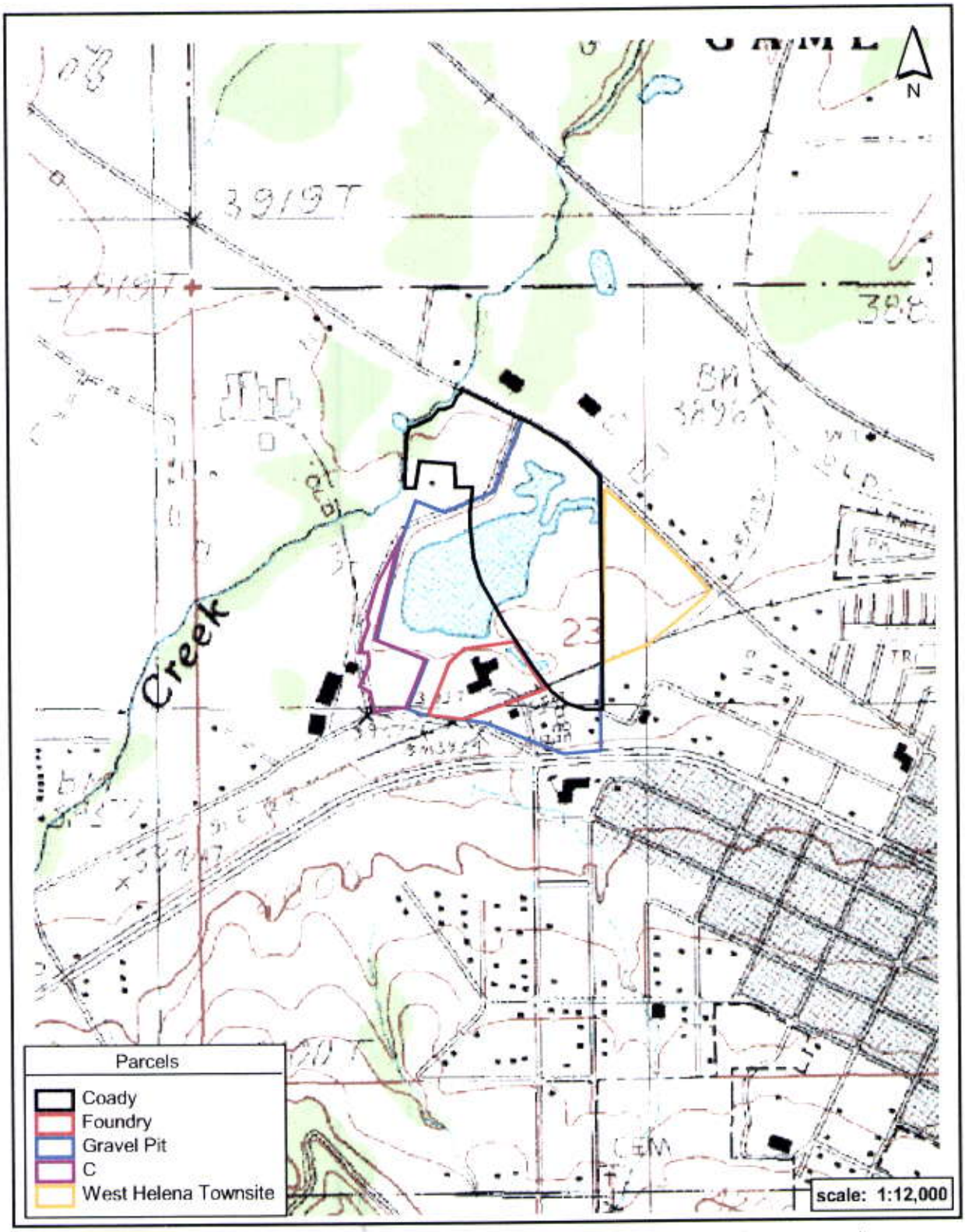

Figure 4. Enlarged portion of area topographic map showing five land parcels encompassing Spring Meadow Lake site area, with corresponding names (to accompany Figure 5 and Appendix B).

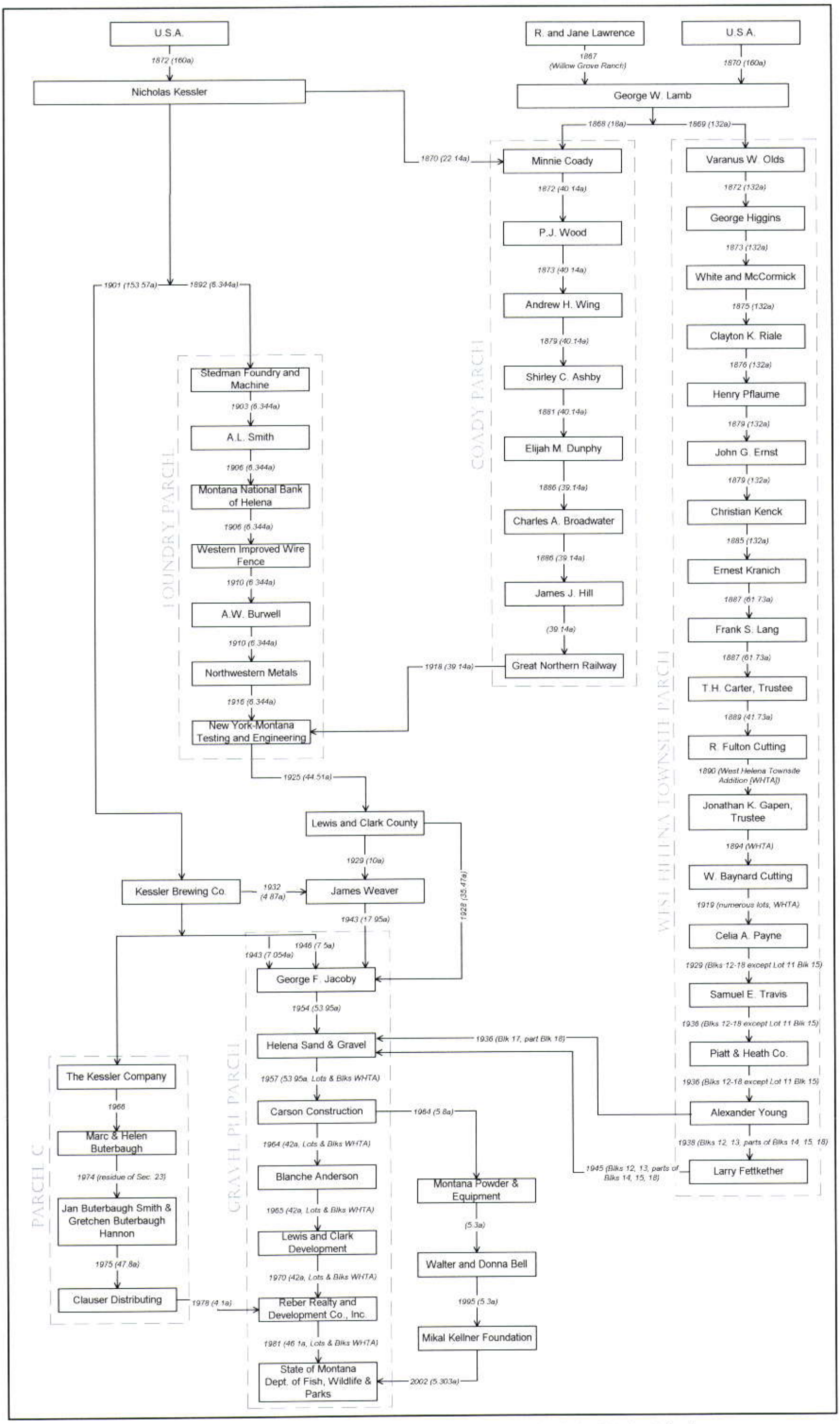

Figure 5. Flow chart illustrating all major land transactions pertaining to the Spring Meadow Lake site, with transactions grouped according to one of five parcels

conducted there (between 1910 and 1920). For the five corporations or partnerships which owned the land during that period (excluding the Great Northern Railway and Montana National Bank of Helena), RTI requested articles of incorporation and other relevant company records from the Montana Secretary of State (see Appendix C).

The cultural resource inventory portion of the project involved both field and historical research tasks. The author accomplished the fieldwork on February 4 and 28, 2005. Because so much of the site was once within a sand and gravel pit, and no earlier historic surfaces remain intact, RTI confined its systematic archaeological survey to less than 10 acres of the total 56-acre site. At the far west edge of the site, the field crew walked a single meandering transect along the top edge of the old pit and another inside the pit near the base of the wall. To the southwest, the crew walked parallel transects in a small area (Parcel C) which historically lay outside the old gravel pit and foundry properties. Also on the south, a single transect was walked at the north edge of the foundry parcel where the land drops off sharply to the old gravel pit. Finally, on the east side of the old gravel pit, on land once platted as part of the West Helena Townsite Addition, the crew walked parallel transects spaced 25 meters apart (Figure 6). The remainder of the site area is either within the bounds of the former gravel pit, in the foundry parcel (all ground surface disturbed), and/or now covered with lawn grass and other improvements in the picnic area portion of Spring Meadow Lake State Park (Figures 7 and 8).

Figure 6. Picnic ground at Spring Meadow Lake Park, at north end of site area, facing northeast.

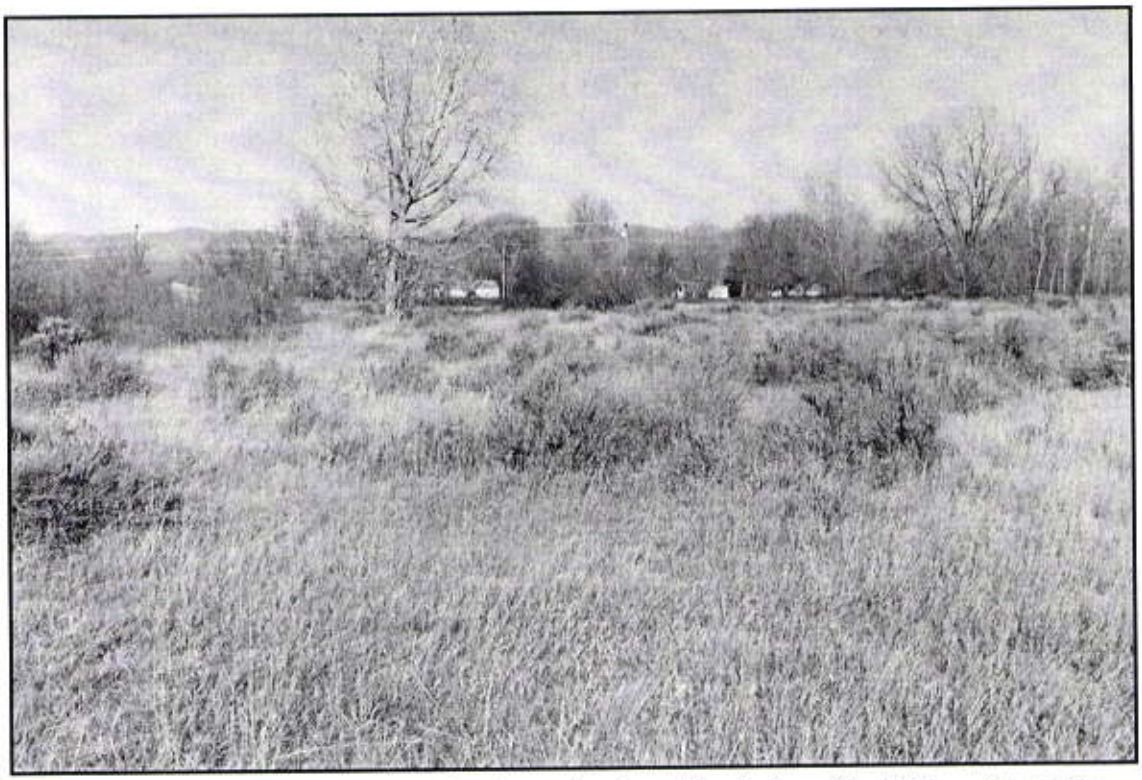

Figure 7. East edge of site area showing undeveloped land where West Helena Townsite Addition was platted, facing northeast.

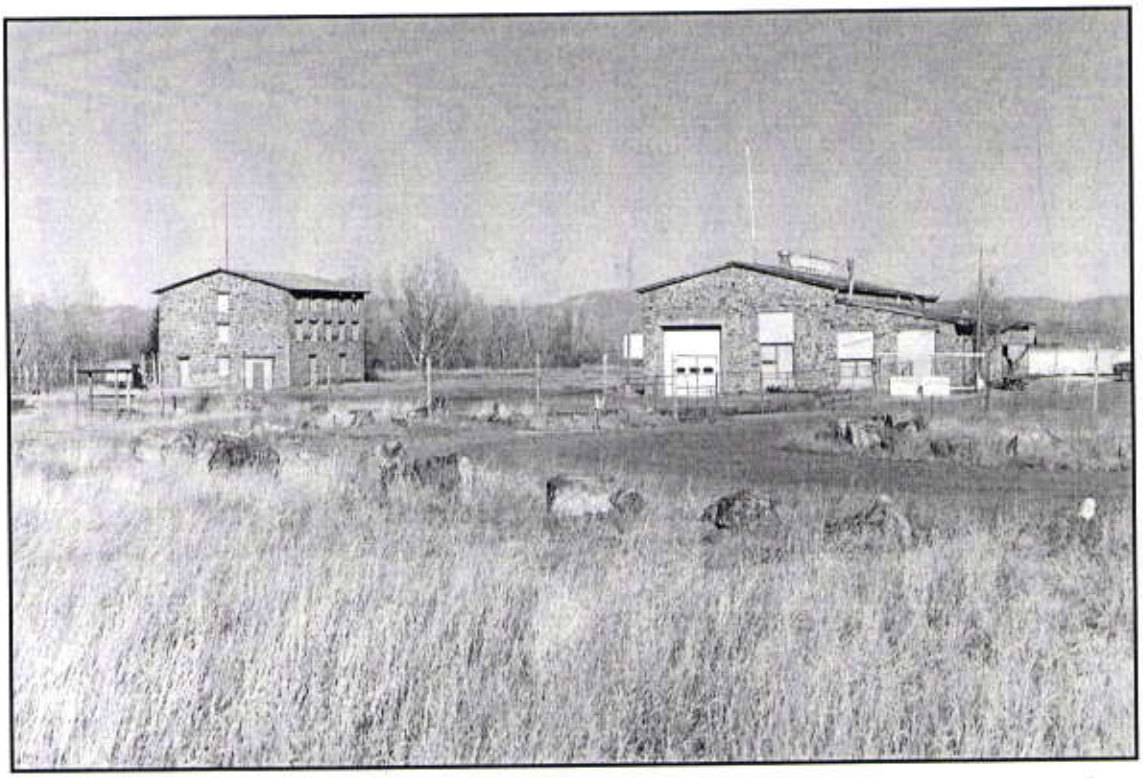

Figure 8. Modern photograph of two remaining stone buildings at historic Stedman Foundry, current home of Montana Wildlife Center, facing northeast.

RTI identified two historic sites in the project area which had not been previously recorded. Both the Kessler Brewery bottle dump and Western Clay Manufacturing spur of the Helena and Red Mountain Railroad were recorded on Montana Cultural Resource Information System forms, mapped using a resource-grade GPS unit, and photographed with color print film.

To research the histories of the two sites, RTI examined secondary sources for information about the Kessler Brewery, Western Clay Manufacturing Company, and Helena and Red Mountain Railroad---all three companies having ties to the sites. In addition, RTI conducted limited research on the phenomenon of bottle dumps associated with historic breweries to establish a context for evaluation of that site type.

DEQ routinely asks its cultural resource consultants to reproduce in their reports historic photographs of the project area, and, where possible, to repeat those images by taking new photographs from the same vantage points as the old. RTI searched for pertinent images at the Photo Archives of the Montana Historical Society. Photographs housed there picture the mill buildings from a distance. However, Kathy Fehlig has a rare and relatively large private collection of photographic images related to the Helena Sand and Gravel operation which post-dates the period of greatest concern here. A handful of images from her collection are digitally reproduced in this document to identify the appearance of the site in the late 1920s as gravel pit excavation began and the size of the operation as it developed over the years.

OWNER/OPERATOR HISTORY

Site History

In this section of the report, RTI combines information gained from its title search and research into historic land use to provide a comprehensive history of industrial operations at the Spring Meadow Lake site. Emphasis is placed on the operations of the Northwestern Metals and New York-Montana Testing and Engineering Companies, the only two companies known to have operated ore processing facilities there.

Industrial development at the Spring Meadow Lake site began after John Stedman transferred ownership control of his foundry business to the newly incorporated Stedman Foundry and Machine Company in 1890. Stedman, who had opened his first foundry 13 years previously, ranked as one of the city's more prominent industrialists at the time. He specialized in the manufacture and sale of mining and milling machinery, and of cast iron building components. Despite two prior moves to increasingly larger facilities, by 1890 his foundry business had outgrown its quarters once again. Apparently lacking sufficient capital to fund construction of a new facility on his own, Stedman incorporated Stedman Foundry and Machine as a means to raise construction funds through stock sales. Some of Helena's wealthiest and most influential businessmen, such as banker A. M. Holter and brewery owner Nickolas Kessler, invested in the new company. Stedmen, however, retained the largest share of the company's stock and assumed the positions of president and general manager.[6]

[6] Joaquin Miller, *Illustrated History of the State of Montana* (Chicago: The Lewis Publishing Co., 1894): 151 (A001); "Taken Suddenly," *Helena Weekly Herald,* 1 April 1897, p. 8 (A002); Montana Secretary of State, Corporations, The Stedman Foundry and Machine Company, Folder D-00128, "Articles of Incorporation," 1 July 1890 (C005).

Soon after its formation, Stedman Foundry and Machine presumably obtained a lease from Nickolas Kessler on a site near Kessler's brewery on the western outskirts of town. Kessler had received a patent to 162 acres at the locale in 1872 and, although unverified, he probably was operating a small brewery on the property at the time.[7] Kessler's rise as an important Montana industrialist, however, truly began in 1886. That year, while building from its mainline in Helena west toward the mining camp of Rimini, the Northern Pacific Railway laid the tracks of its new Helena and Red Mountain branch line through the south end of Kessler's property. Kessler took immediate advantage of the railroad connection, constructing a large new brewery along the north side of the Helena and Red Mountain that year as well as a brickyard and clay manufacturing plant to the north. The brewery and brickyard were linked by a spur to the railroad line. Many of the homes and businesses to appear in Helena for many years thereafter were made of Kessler's bricks. Meanwhile, Kessler's brewery business came to rank as one of the leading manufacturers and distributors of beer in the state.[8]

After securing adequate investment funds, Stedman Foundry and Machine completed construction of its new foundry in 1892.[9] Located in the southeast corner of Kessler's property, the foundry complex was both large and impressive, boasting a foundry, machine shop, and a pattern shop in three separate buildings. Each building was a fairly massive structure of stone masonry construction. Other improvements at the foundry included a warehouse, sheds, office building, and a horse corral complete with stable (Figure 9). The foundry stood on the Helena and Red Mountain branch line.[10]

Stedman Foundry and Machine operated with success for the next several years, employing as many as 50 men. In 1894, it finally acquired the deed of title to 6.334 acres at the foundry site from Kessler.[11] The business, however, apparently began to flounder following the untimely death of John Stedman later in the decade. Presumably in need of working capital, Stedman Foundry and Machine secured a short-term loan of $23,000 from the Montana National Bank of Helena in the summer of 1900.[12] The foundry remained in active operation for another year or so although, in the

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[7] Bureau of Land Management, Patent (B005). The two following sources reported that Kessler purchased a brewery in Helena in 1865, but neither indicated where in the city it was. Fredric L. Quivik, *The Western Clay Manufacturing Company: An Historical Analysis of the Plant and its Development* (Butte: Renewable Technologies, Inc., 1985): 8 (A003); Vivian A. Paladin, "Nick Kessler's Brewery and Brickyard Places for Refreshment and Industry," in *The Valley of the Prickly Pear*, ed. Vivian A. Paladin (Helena: The Little Red School House, Inc., 1988): 134 (A004).

[8] Quivik, *The Western Clay Manufacturing Company*, 8(A003); Paladin, "Nick Kessler's Brewery and Brickyard," 134(A004); Bill Taylor and Jan Taylor, *Rails to Gold and Silver: Northern Pacific's Lines to Montana's Mining Camps, Volume 1: 1883-1887* (Missoula: Pictorial Histories Publishing, 1999): 45-56 (A005).

[9] Chere Jiusto and John Phipps, National Register of Historic Places Registration Form for the Stedman Foundry and Machine Co., 1 December 1994, sec. 8, p. 1, on file, Montana State Historic Preservation Office, Helena (A006).

[10] Ibid. (A006); Sanborn Fire Insurance Co., "Map of Helena, Montana, 1892 (A006)," attached to Jiusto and Phipps, National Register of Historic Places Registration Form.

[11] Miller, *Illustrated History of Montana*, 151(A001); Lewis and Clark County Clerk and Recorder, Deed Book 35, p. 45 (B014).

[12] "Taken Suddenly," *Helena Weekly Herald*, 8 (A002); District Court of the First Judicial District of the State of Montana, Alfred B. Sibley, Plaintiff vs. Stedman Foundry and Machine Company, Defendant, c. December 1900, Case No. 5476, on file, Lewis and Clark County Clerk of Courts, Helena (A007).

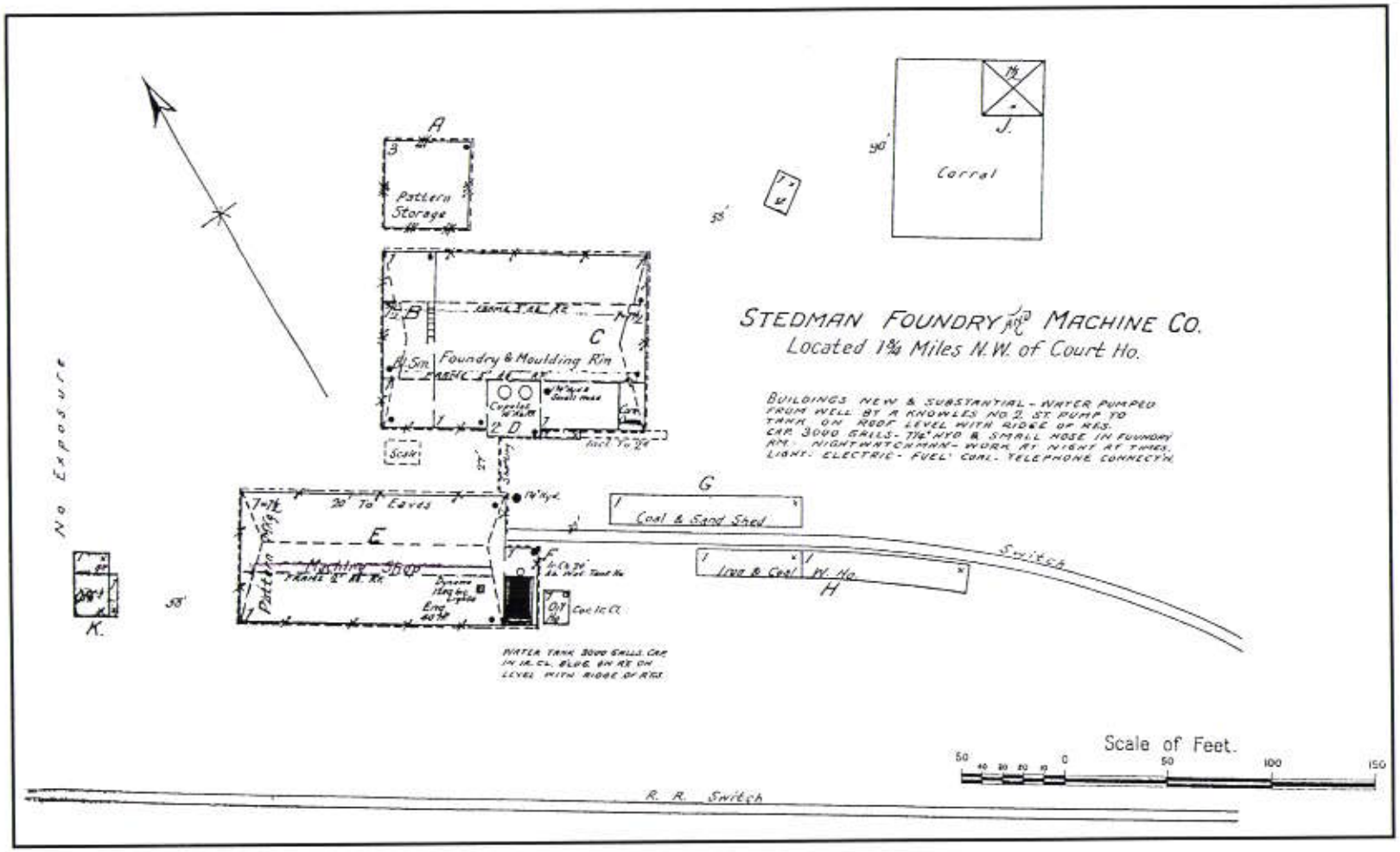

Figure 9. 1892 Sanborn map of building and structures at Stedman Foundry complex.

meanwhile, the company defaulted on its loan. As a means to satisfy that debt, in the fall of 1902, the courts ordered the sale of the 6.334 acres and the improvements thereon at public auction. The president of Montana National Bank provided the successful bid and received title to the property via a sheriff's deed.[13]

The Stedman Foundry likely stood all but abandoned for the next several years until the Western Improved Wire Fence Company of the United States of America became interested in moving its manufacturing plant to Helena. Organized in 1903 and originally located in Bozeman, Western Improved Wire Fence fabricated what it described as "improved wire fences," along with gates, posts and other fencing supplies.[14] In the summer of 1906, the company's board of directors approved a motion calling for the relocation of the business to Helena.[15] About six months later, Western Improved Wire Fence purchased the Stedman Foundry.[16] The company probably refurbished the foundry and shops and began manufacturing fencing soon after that.

In the early 1910s, the old Stedman Foundry witnessed a major change in operation from a manufacturing plant to an ore reduction facility. The Northwestern Metal Company initiated the conversion after its agent purchased the 6.334 acres at the foundry for a hefty $10,000 from Western Improved Wire Fence in the fall of 1910.[17] Work to install milling equipment in one or more of the old stone buildings was likely underway before the year's end.[18]

Organized in early 1909, Northwestern Metals held controlling interest in the Bullion, Comet, Crystal and other mining properties at the Cataract District near Basin.[19] Its primary promoter and president, Marcus L. Hewett, had been similarly associated with the previous operator

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[13] Lewis and Clark County Clerk and Recorder, Deed Book 36, p. 255 (B015). A September 1901 newspaper advertisement by Stedman Foundry and Machine made note that "we make or handle everything needed for milling and mining operations," an indication that company was still in production at that time. *Helena Herald,* September 1901 (A008), photocopy of advertisement, on file, Stedman Foundry & Machine Company Folder, Vertical Files, Montana Historical Society Library and Archives, Helena. Sources consulted made no mention of any activity by the company after that.

[14] Montana Secretary of State Corporations, Western Improved Wire Fence Company of the United States of America, Folder D-004149, "Articles of Incorporation," 26 November 1903 (C006).

[15] Ibid., "Change of Place of Business," 16 July 1906 (C006).

[16] Lewis and Clark County Clerk and Recorder, Deed Book 33, p. 560 (B018).

[17] About a month after he purchased the foundry site, the company's agent, A. W. Burwell, transferred the deed to the property to Northwestern Metals. Lewis and Clark County Clerk and Recorder, Deed Book 66, p. 35 (B019), p. 36 (B020).

[18] The 1911 edition (and subsequent editions) of the *Copper Handbook* provided misinformation as to the location of Northwestern Metals' new reduction works and its "three stone buildings." They reported that the facility was at the site of the "old Peck concentrator, midway between Helena and East Helena." Horace J. Stevens, comp., *The Copper Handbook: A Manual of the Copper Industry of the World,* vol. V (Houghton, Michigan: by the complier, 1911): 1319-20 (A009) [subsequent citations for the *Copper Handbook* will be by abbreviated title, volume number, year and page number(s) only]; Mary McCormick, *Finding of Effect for a Proposed Reclamation Project at the Corbin Flats' Placer Site (24JF482), Colorado Historic Mining District (24JF274), Jefferson County, Montana,"* (Renewable Technologies, Inc.: Butte, prepared for Montana Tunnels Mines, Inc., Jefferson City, 1996): 3-4 (A010).

[19] Montana Secretary of State, Corporations, Northwestern Metals Company, Folder D-006371, "Articles of Incorporation," 8 September 1909 (C004).

at those properties, the Cataract Mining Company. For a while, Cataract Mining had seemed a fairly prosperous concern, conducting considerable development work at the Bullion between 1901 and 1905, and completing construction of a concentrator and smelter at the property in the following year. Its reduction works, however, proved unable to handle the Bullion's complex zinc-blend ore at a profit. By 1908, Cataract Mining had gone out of business.[20]

In an early prospectus on Northwestern Metals, Hewett announced the company's plan to build a 100-ton mill for custom treating the "refractory zinc ores of the Northwestern States" by the Baker-Burwell process.[21] Refined and patented by Charles Baker and A. W. Burwell in 1904-05, the Baker-Burwell process represented an early development by American metallurgists in the use of dry chlorination for handling low-grade complex ores that, because of their zinc content, were not conducive to treatment by amalgamation or cyanidation.[22] In general, dry chlorination relied on a series of chemical and electro-chemical processes for reducing ore to products suitable for shipment directly to a refinery without treatment at a smelter first. The process basically involved impregnating dry crushed ore with chlorine gas at high temperatures, resulting in the formation of chlorides with each metal present, except iron and manganese. The chlorinated ore was then washed and the metal chlorides drawn off in solution. Except for zinc, the metals could be either dissolved or leached out of the chlorides. Dry chlorination metallurgists relied on an electrolysis process for extracting the zinc.[23]

While other variations of dry chlorination processing had seen experimental use in the West by 1910, Hewitt claimed the Baker-Burwell as the only viable method for recovering all the metal values from complex zinc ores on a commercial basis. In regards to production at Northwestern Metal's mill, he estimated that net profits would average a "conservative" $25 per ton. It was further projected that, if the mill processed 100 tons each day in a 350-day work year, the company could expect to post an impressive annual net earning of $875,000.[24] The editor of the *Copper Handbook,* however, provided his readers a less than optimistic assessment of Northwestern Metal's chance for success, writing that the company was "not favorably regarded."[25]

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[20] Renewable Technologies, Inc., *Bullion (PA No. 22-008) Cataract Mining District Jefferson County, Montana: Abandoned Mines Hazardous Materials Inventory Past and Present Landownership/Mine Operators Investigation Phase I*, (Butte: prepared for Montana Department of Environmental Quality, Abandoned Mine Reclamation Bureau, Helena, 1996): 3, 7-8 (A011).

[21] Marcus L. Hewett to Hewett, Wood and Co., 1 December 1909, correspondence accompanying Hewett, Wood and Co., "Northwestern Metals Company," ca. December 1909, copy on file, Montana Department of Environmental Quality, Mine Waste Cleanup Bureau, Helena (A012).

[22] *Mining and Scientific Press* vol. 90, no. 9 (4 March 1905): 132 (A013); Charles E. Baker, "A New Application of Chlorine in Metallurgy," *Transactions of the American Electrochemical Society,* vol. XII (South Bethlehem, PA: The American Electrochemical Society, Lehigh University, 1907): 156 (A014).

[23] For detailed descriptions of various dry chlorination process developed during the period, see: Baker, "A New Application of Chlorine in Metallurgy," 156-163 (A014); R.L. Herrick, "The Malm Dry Chlorination Process," *Mines and Minerals* vol. 30, no. 6 (January 1910): 370-74 (A015); S.A. Ionides, "The Dry Chlorination of Complex Ore," *Mining and Scientific Press* (27 May 1916): 781-87 (A016); Donald M. Liddell, ed., *Handbook of Non-Ferrous Metallurgy,* vol. II (New York: McGraw-Hill Book Company, 1926): 1156-57 (A017).

[24] Ibid. (A017); Hewett correspondence to Hewett, Wood and Co., 1 December 1909 (A012).

[25] *Copper Handbook*, vol. X (1911): 1320 (A009).

One of the developers of the Baker-Burwell process, A. W. Burwell, became directly involved in Northwestern Metals. The company likely received its patent rights to the process from him and, in turn, Burwell acquired a seat on Northwestern Metals' board of directors.[26] Additionally, Burwell seemingly took charge of finding an appropriate facility for the reduction works. He conducted the transaction for the purchase of the Stedman Foundry from Western Improved Wire Fence. Burwell held the deed for the property, however, for less than a month, before transferring the title to Northwestern Metals in October 1910.[27]

Northwestern Metals likely began experimental work at its Baker-Burwell mill by late 1910 or early 1911, under the direct supervision of an experienced metallurgist and smelter man, C. C. Titus.[28] The company reopened its Cataract mining properties about this time as well. Over the next few years, operations at the mill, however, remained limited to test runs on small lots of ore. Northwestern Metals, meanwhile, stockpiled the bulk of its mine production in anticipation of the mill's final completion.[29] By late 1913, the company reportedly had expended a total of $275,000 of its investors' funds in machinery and experimental work at the mill.[30] Another $100,000 in improvements to bring the mill to commercial capacity were apparently completed by the spring of 1914.[31]

In the first stage of processing at the mill, ore was crushed to a ¼-inch size grade, dried in a furnace, and placed in a hopper for delivery to a tube mill. Essentially a revolving cylinder, the tube mill contained flint pebbles and had an inlet for crushed ore at one end and an inlet for chlorine gas at the other. Mill operators fed crushed ore and admitted chlorine gas into the tube mill at the same time. Conversion of the chlorine from a liquid to a gaseous state had occurred with salts in electrolytic cells. As the tube mill revolved, the chlorine gas reacted with the metals in the ore converting them into metallic chlorides. At the same time, the pebbles ground off the metallic chlorides, exposing new surfaces of ore to the chlorine gas.[32]

After chlorination, the ore went from the tube mill to agitating tanks where it was leached with water. The metal chlorides dissolved in the water, leaving them free of gangue and sulfur. The company relied on substitution to recover the metals (save zinc), from the solution. Gold and silver were precipitated on copper, copper on lead, lead on zinc. After oxidization with chlorine gas, iron

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[26] Ibid. (A009); Hewett, Wood and Co., "Northwestern Metals Company (A012)."

[27] Lewis and Clark County Clerk and Recorder, Deed Book 66, p. 35 (B019); p. 36 (B020).

[28] Hewett, Wood and Co., "Northwestern Metals Company" (A012); *Copper Handbook* vol. X (1911): 1320 (A009); *Engineering and Mining Journal* vol. 97, no. 14 (1914 April 4): 733 (A018).

[29] U.S. Geological Survey, *Mineral Resources of the United States, Calendar Year 1911* (Washington, DC: Government Printing Office, 1912): 627-28 (A019) [subsequent citations of *Mineral Resources* (and its successor, *Minerals Yearbook*) will be noted by abbreviated title and year only]; *Mineral Resources, 1912*, 758 (A020); *1913*, 591 (A021); *Copper Handbook* vol. XI (1912-1913): 668 (A022); *Engineering and Mining Journal* vol. 97, no. 14 (4 April 1914): 733 (A018).

[30] *Copper Handbook* vol. XI (1912-1913): 668 (A022).

[31] *Engineering and Mining Journal* vol. 97, no. 13 (1914 March 28): 684 (A023); no. 20 (1914 May 16): 1022 (A024).

[32] *Engineering and Mining Journal* vol. 93, no. 26 (1912 June 29): 1258 (A025); vol. 97, no. 14 (4 April 1914): 733 (A018); Lindell, *Handbook of Non-Ferrous Metallurgy*, 1157 (A017); *Mineral Resources, 1913*, 591 (A021).

and manganese were precipitated on zinc oxide. In the final stage of processing, the remaining zinc-chloride solution was fused and electrolyzed for the recovery of metallic zinc and regeneration of the chlorine gas. After conversion from gas back to liquid, the chlorine was returned to the electrolytic cells.[33]

Despite upgrades, Northwestern Metals' Baker-Burwell mill remained out of commercial production in 1914, while the company continued to devote its resources and energies toward experimental work.[34] Test runs may have been performed as late as August 1, 1915. On that day, superintendent Titus stopped work at the mill and ended his employment with Northwestern Metals for good.[35] Within a matter of just a few weeks, if not days, some of the company's creditors petitioned in Federal court to have Northwestern Metals declared involuntarily bankrupt.[36]

Northwestern Metals was not alone in its dismal failure in the use of dry chlorination for extracting metals from ore. While not verified, most other dry chlorination plants of the early twentieth century operated only briefly and/or sporadically as well, and with very little if any success.[37] In an early critique of the Baker-Burwell method, metallurgist W. Johnson seems to have accurately identified the major flaw of dry chlorination in general. He contended that, while generally providing good results when tested on "milligrams" of ore in the lab, the various chemicals and electro-chemicals involved were not amenable to handling tonnages.[38] Well after Northwestern Metals' demise, another scientist in the metallurgical field provided specifics about the "serious difficulties" contributing to the poor performance at Montana's "experimental" Baker-Burwell mills. Those difficulties of note included the loss of chlorine to hydrochloric acid and the lack of the development of cells suitable for the electrolysis of fused chlorides.[39]

Following the recommendation of the judge appointed referee in the company's involuntary bankruptcy proceedings, Northwestern Metals' mill went up for sale at public auction in November 1916. The sale package included rights to the 6.334-acre foundry parcel and all of the buildings and other improvements thereon. With the exception of the electric generating equipment and transformers, all milling apparatus and other machinery at the mill also were part of the sale. The

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[33] Ibid. (A021)

[34] *Mineral Resources, 1914*, 765 (A026).

[35] Helena Adjustment Company, "Helena Adjustment Company, Plaintiff vs. Northwestern Metals Company, Defendant," [August 10, 1915]; complaint to the District Court of the First Judicial District, Montana, on file, Lewis and Clark County Clerk of the Courts, Helena (A027).

[36] *Engineering and Mining Journal* vol. 100, no. 9 (28 August 1915): 373 (A028).

[37] For example, after expending more that $100,000 in the construction and operation of an experimental dry chlorination plant between 1904 and 1908, representatives of F. Augustus Heinze's mining interests in Butte scrapped all plans to build a commercial-scale reduction works of the type. Likewise, the Bunker Hill & Sullivan Mining & Concentrated Company made a heavy investment in construction of dry chlorination mill at Kellogg, Idaho. In common with Northwestern Metals, the company abandoned the operation before ever placing the mill into commercial production. Herrick, "The Malm Dry Chlorination Process," 370 (A015); Ionides, "The Dry Chlorination of Complex Ores," 781 (A016).

[38] Discussion at the conclusion to Baker, "A New Application of Chlorine," 162 (A014).

[39] Liddell, *Handbook of Non-Ferrous Metallurgy*, " 1157 (A017).

newly formed New York-Montana Testing and Engineering Company acquired the property on a high bid of $6,908.50. It later was able to recoup those funds, if not more, off the sale of the machinery and equipment left behind by Northwestern Metals.[40]

In common with Hewett and other early promoters of the ill-fated Northwestern Metals Company, New York-Montana Testing and Engineering's officials boasted big plans to develop and operate a custom mill for treating low-grade and/or complex ores. Rather than refined metal products, however, they proposed that their mill would primarily reduce ore into concentrates at a grade suitable for shipment to a smelter at a profit. In addition to a concentrator, the facility was to operate an amalgamation mill and cyanide plant, providing its customers a variety of treatment options. It was also to include a full-fledged testing plant. Here, the company planned to individually sample and test each shipment of ore received at the mill to precisely determine its mineral values as well as its "best method of treatment." Its assaying and testing services were to be made available to prospectors and mining concerns alike.[41]

New York-Montana Testing and Engineering essentially represented the interests of Charles Fryberger, Frank Eichelberger, and Wilton G. Brown. Fryberger and Eichelberger were both mining and construction engineers, and each had worked in the mining districts around Helena for several years. Fryberger held particular expertise in the design, construction, and operation of mills. Brown, in turn, had run an "assaying and engineering office" in Helena for the previous 19 years and reportedly possessed first-hand knowledge of ores "from all parts of the camp." Fryberger and Eichelberger presumably collaborated on the design of the company's reduction works, oversaw its construction, and jointly managed and supervised operations at the mill following its completion. Brown took charge of the assay laboratory and testing plant.[42] After signing and filing New York-Montana Testing and Engineering's articles of incorporation, Fryberger and Brown assumed the offices of president and secretary-treasurer, respectively. Eichelberger became vice president.[43]

By early February 1917, New York-Montana Testing and Engineering's work to refurbish the old stone buildings at the former foundry neared completion. At the time, the reduction plant, which occupied the former foundry building, was equipped with only crushing and concentrating equipment, including a jaw crusher, two sets of rollers, Colorado ball mill, four Hartz jibs, and four

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[40] "New Custom Mill for Treating Low Grade Ore in Mines and on Dumps of this District Nears Completion," *The Helena Independent,* 4 February 1917 (A029); Lewis and Clark Clerk and Recorder, Deed Book 76, p. 257 (B021).

[41] "New Custom Mill for Treating Low Grade Ore," *The Helena Independent* (A029).

[42] Ibid. (A029); "Concentrates are Sent to Smelter," *[The Helena Independent?]*, ca. mid-May 1917, clipping on file, Montana Department of Environmental Quality, Mine Waste Clean Up Bureau, Helena (A030).

[43] Ibid. (A030); Montana Secretary of State, Corporations, New York-Montana Testing and Engineering Company, Folder D-01038, "Articles of Incorporation," 20 September 1916 (C003); R. L. Polk & Co. of Montana, compiler, *R. L. Polk & Co.'s Helena City Directory for the Year Commencing June 1917,* vol. XXVIII (Helena; published by complier, 1917): 328 (A031).

Wilfley tables. It had the capacity to handle between 50 to 80 tons of ore in a day. The company housed its laboratory and testing plant in the old pattern shop, while the old machine shop was reserved for storage (Figures 10 and 11).[44]

When New York-Montana Testing and Engineering opened for business a few weeks later, it started the concentrator on sulphide ore off the dump of the Valley Forge Mine at Rimini. Ore shipments arrived directly from the mining camp on the rails of the NP's Helena and Red Mountain line. By mid-May 1917, the concentrator had reduced about 300 tons of ore to 50 tons of concentrates, assaying at an average of $45 per ton in gold and silver. That production went in a single carload to East Helena for smelting.[45]

The company dumped its mill tailings on its property, presumably just outside of the reduction works itself. There, workers flushed the waste with water until the flow became clear. Water for the washing came from an adjacent well.[46]

In the summer or early fall of 1917, New York-Montana Testing and Engineering began serving a significant new clientele, producers of manganese ores at Philipsburg and Butte.[47] Primarily used for hardening steel as well as in the production of dry-cell batteries and some chemical agents, domestic manganese ore had only become an important commodity in the United States after the outbreak of World War I in Europe during the mid-1910s.[48] Combat activities in the Atlantic soon made it nearly impossible for U.S. steel makers and other industrialists to procure the base metal from traditional overseas sources.

The first major exploitation of manganese ore in Montana occurred at Philipsburg in 1916. As both the demand and price for domestic manganese skyrocketed when the United States entered the war in April 1917, mining of the ore at Philipsburg significantly increased and manganese ores from Butte began to appear on the market as well. Production of the ore in the state that year totaled 58,427 tons at Philipsburg and 2,544 tons at Butte, establishing Montana as the nation's leading manganese producer by a wide margin.[49]

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[44] "New Custom Mill for Treating Low Grade Ore," *The Helena Independent* (A029); "Concentrates are Sent to Smelter," *[The Helena Independent?]; Mineral Resources, 1917*, 352 (A030); Sanborn Fire Insurance Co., "Map of Helena, Montana, 1892, revised to 1927," on file, Montana Historical Society Library and Archives, Helena (A033).

[45] "Concentrates are Sent to Smelter," *[The Helena Independent?]* (A030); *Engineering and Mining Journal* vol. 103, no. 20 (19 May 1917): 912 (A034).

[46] "Concentrates are Sent to Smelter," *[The Helena Independent?]* (A030).

[47] *Mineral Resources, 1917*, 352 (A032); "Helena Plant Works Ore Needed for War," *The Helena Daily Independent*, 17 February 1918, p. 6 (A035).

[48] Samuel Barker, Jr., "The Manganese Industry at Philipsburg and Butte, Mont.," *Quarterly Journal of the Montana Society of Engineers"* vol. 1, no. 9 (1918 January): 18-19 (A036); United States Geological Survey, *Deposits of Manganese Ore in Montana, Utah, Oregon, and Washington*, by J. T. Pardee, Bulletin 725-C (Washington, DC: Government Printing Office, 1921): 141-43 (A037).

[49] U.S. Geological Survey, *Deposits of Manganese Ore in Montana, Utah, Oregon, and Washington*, Pardee, 141-43 (A037).

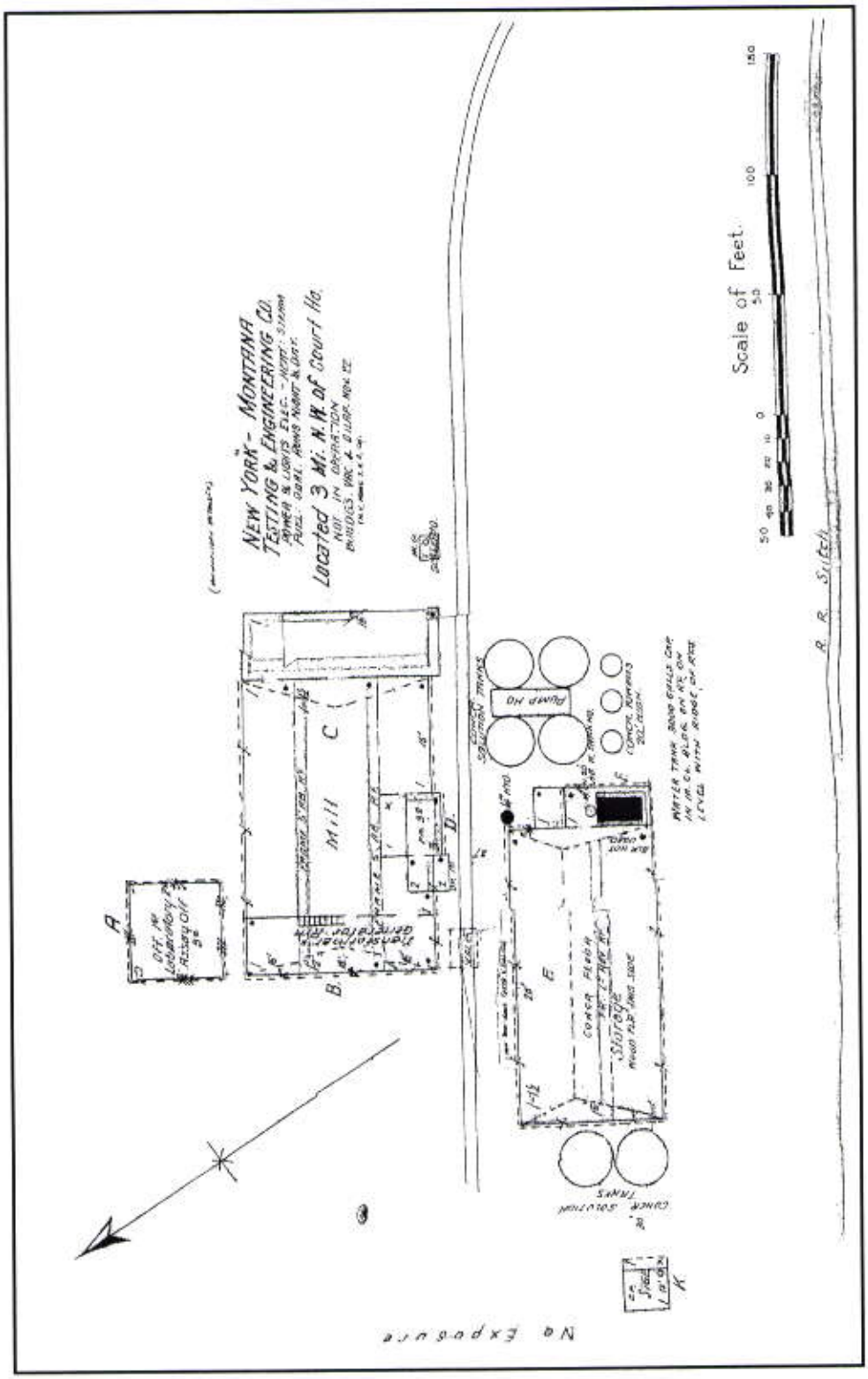

Figure 10. 1927 Sanborn map old Stedman Foundry complex, showing buildings and structures at New York-Montana Engineering and Testing mill.

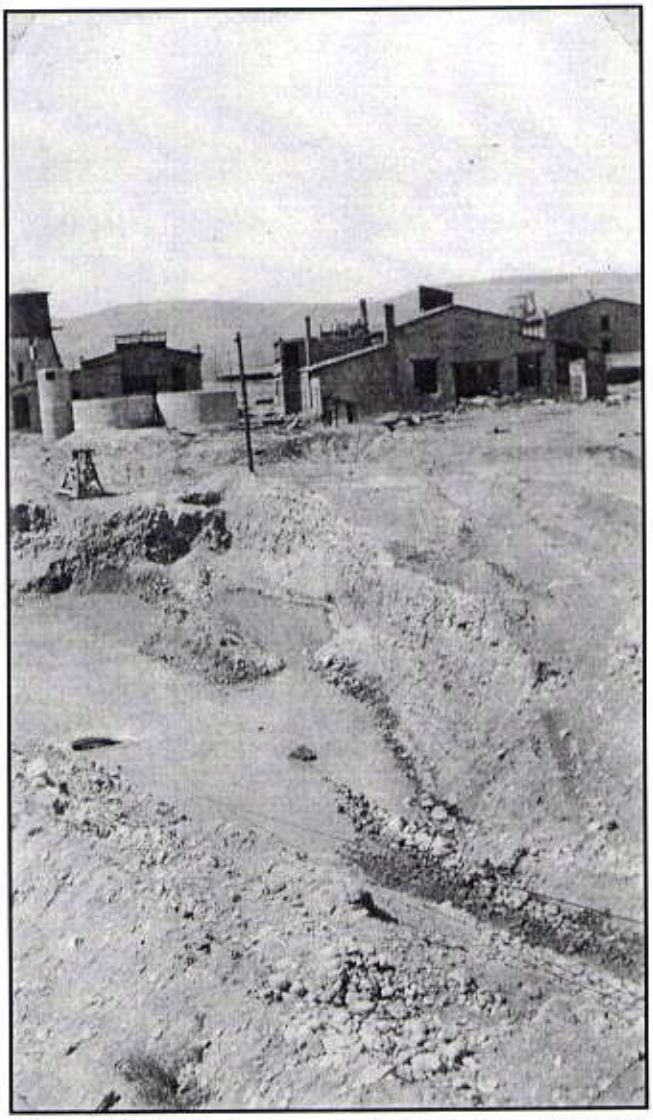

Figure 11. 1931 photograph of old Stedman Foundry buildings, with possible cyanide tanks at left (courtesy of Kathy Fehlig).

New York-Montana Testing and Engineering's concentrator probably had treated slightly over 7,000 tons of manganese ore by late 1917. The only other reduction works to operate on manganese that year, the Ophir Mill in Butte, seemingly enjoyed a less successful run due to operational difficulties. In the first month of 1918 alone, New York-Montana Testing and Engineering shipped another 713 tons of manganese concentrates. By then, a total of 5,000 tons of local sulphide ore had been run through the plant as well.[50] A Helena newspaper hailed the company as the "largest shipper in this part of Montana…not excelled except by shipments of crude manganese ore from Philipsburg."[51]

[50] "Helena Plant Works Ore Needed for War," *The Helena Daily Independent* (A035); Barker, "The Manganese Industry at Philipsburg and Butte," 18 (A036).

[51] "Helena Plant Works Ore Needed for War," *The Helena Daily Independent* (A035).

By 1918, New York-Montana Testing and Engineering had agreed to ship as much as 1,000 tons of manganese concentrates a month to steel makers in Chicago. While nearly achieving that goal in January, its production level subsequently dropped considerably due to the lack of an adequate ore supply. Most, if not all, of the company's customers at Philipsburg stopped sending their manganese ore to Helena following the opening of a new 350-ton concentrator in the Philipsburg district. The only other major contract for manganese ore retained by New York-Montana Testing and Engineering after that was with the Clark-Montana Realty Company, a holding firm that controlled several Butte mines formerly in the estate of William A. Clark. Clark-Montana Realty pledged to send the entire output of manganese ore from its Ancient Mine to Helena for concentration.[52]

In its year-end report for 1918, *Mineral Resources* credited New York-Montana Testing and Engineering's Helena plant and the newly remodeled Ophir Mill in Butte each for reducing "large quantities of the Butte manganese ore to a marketable product."[53] Another contemporary source, however, indicted that, of the total of 72,381 tons of manganese ore produced in the Butte district in 1918, only about 10% or a mere 7,200 to 7,300 tons had been concentrated prior to shipment out of state.[54] Additionally, a new electric ferromanganese plant at Great Falls also received Butte manganese ore that year. It probably, however, processed only a few hundred tons during its brief period of operation that year, a few short weeks in the fall.[55]

While the exact date of the transaction is unknown, it was likely in 1918 that New York-Montana Testing and Engineering issued a full 91% share or $91,000 worth of its stock to the U.S. Manganese Corporation.[56] Sometime that year, U.S. Manganese also gained an interest in the Ophir Mill.[57] While the company remodeled and may have operated the Butte manganese mill on its own, there is no evidence that it became heavily involved, if at all, in the day-to-day workings at New York-Montana Testing and Engineering's mill. Rather, management of the Helena plant remained in the hands of Freyberger. Additionally, he and Eichelberger continued to head New York-Montana Testing and Engineering's corporate structure, holding the offices of president and vice president, respectively.[58]

In the midst of its milling operations in 1918, New York-Montana Testing and Engineering greatly increased the land holdings at its Helena plant. At that time, the company received a quit-claim deed for some 40 acres just north of the facility (known as the Coady parcel in this report) from the Great Northern Railway.[59] Although not confirmed, the need for additional land for its tailings dump likely prompted the purchase. Tailings may already have encroached into the area by then.

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[52] Ibid. (A035).

[53] *Mineral Resources, 1918*, 644 (A038).

[54] U.S. Geological Survey, *Deposits of Manganese Ore in Montana, Utah, Oregon, and Washington*, Pardee, 142-43 (A037).

[55] Ibid., 175 (A037); *Mineral Resources, 1918*, 298 (A038).

[56] *Mines Handbook* vol. XV (1922): 1094 (A039). This is the only document RTI found that indicated a relationship between New York-Montana Testing and Engineering and the U.S. Manganese Corporation.

[57] *Engineering and Mining Journal* vol. 107, no. 2 (11 January 1919): 74 (A040).

[58] Mines *Handbook* vol. XV (1922): 1095 (A039).

[59] Lewis and Clark Clerk and Recorder, Deed Book 87, p. 401 (B012).

New York-Montana Testing and Engineering along with others involved in the nation's manganese industry faced an uncertain future when World War I came to an end in late 1918. Almost immediately, most U.S. steel makers cancelled or significantly reduced their orders for manganese ore and concentrates, and the price of domestic manganese plummeted in response. By early 1919, the Philipsburg concentrator probably was the only reduction works in Montana still processing manganese ore.[60]

While the shutdown at the Ophir Mill and electric ferromanganese plant at Great Falls persisted, New York-Montana Testing and Engineering's concentrator was producing manganese concentrates again by early April of 1919. At the time, a report appeared in the press that the company had a contract to furnish the Carnegie Steel Company a total of 500 tons of manganese ore and concentrates a month through July of the following summer. Clark-Montana Realty's Ancient Mine was providing ore to the Helena plant once again.[61]

At the expiration of its contract with Carnegie Steel at August 1919 and with no other clients in need of manganese concentrates forthcoming, New York-Montana Testing and Engineering returned the focus of its custom operation to milling of complex gold and silver ores from mines in the greater Helena region. By the end of the year, the concentrator had been equipped with Roth flotation units and the company was readying to receive sulphide ore from the Rimini District. By summer, it had captured the business of Liverpool Silver Company, a producer of siliceous silver ore near Clancy, as well.[62]

By late 1920, the amount of Rimini and Liverpool ore concentrated at the Helena plant combined may have totaled as much as 4,000 tons, if not more.[63] Due to low prices for both precious and base metals, the operation had proven less than successful. At that time, New York-Montana Testing and Engineering closed its reduction works, awaiting improvements in the metals market.[64] The shutdown, however, became permanent.

Sources consulted provided no precise figures on the total amount of ore treated at New York-Montana Testing and Engineering's reduction works from the time that facility first came on line in the spring of 1917 until the company ceased active operations for good in late 1920. Based on

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[60] *Engineering and Mining Journal* vol. 106, no. 22 (30 November 1918): 975 (A041); *Engineering and Mining Journal* vol. 107, no. 2 (11 January 1919): 74 (A040); D. F. Hewett, "Manganese In 1919," *Engineering and Mining Journal* vol. 109, no. 3 (17 January 1920): 208-09 (A042); U.S. Geological Survey, *Manganese Mining in Montana, Utah, Oregon, and Washington*, Pardee, 175 (A037).

[61] *Engineering and Mining Journal* 107, no. 16 (19 April 1919): 728(A043); Hewett, "Manganese in 1919," 209 (A042).

[62] *Engineering and Mining Journal* vol., 109, no. 3 (17 January 1920): 152 (A044); vol. 109, no. 23 (5 June 1920): 1288 (A045); *Mines Handbook* vol. XV (1922): 1095 (A039); *Mineral Resources, 1920*, 210-11 (A046); U.S. Bureau of Mines, "List of Reduction Mines in Montana, 1920," *Reports of Investigations*, October 1921 (A047).

[63] This figure assumes that the plant processed about 2,500 of the total of 3,316 tons of ore produced by the mines at Rimini that year along with 1,500 tons from the Liverpool Mine. *Mineral Resources, 1920*, 210-11 (A046).

[64] *Mines Handbook* vol. XV (1922): 1095 (A039).

the limited information available, its feed of manganese ore may have totaled around 13,500 tons.[65] The grade of the manganese concentrates shipped from the plant averaged between 48 and 51 percent manganese per ton. The plant's high-end product was battery grade, i.e., concentrates derived from ores with a manganese dioxide content of 70 percent or more.[66] According to one contemporary report, New-York Montana Testing and Engineering had shipped "the highest grade manganese in the county" for more than a year during the wartime boom.[67] Meanwhile, the plant's total run on sulphide ore from the Rimini District and the Liverpool Mine may have amounted to 9,000 tons, if not more.[68]

As noted above, New York-Montana Testing and Engineering's officials initially had planned to offer a variety of treatment options at its Helena plant, including concentration as well as amalgamation and cynidation.[69] While historic photographs of the facility plant depicted large outdoor concrete tanks typical of cyanide installations of the period (Figures 11 and 12), there are no known accounts that the plant ever handled any ore by the cyanide process. Sources consulted, likewise, made no mention of an amalgamation mill operating there. Rather, the only reduction methods used at the plant were gravity concentration only or a combination of gravity and flotation concentration.

After New York - Montana Testing and Engineering closed its operation, the company lost its West Helena property to Lewis and Clark County for failure to pay its 1920 taxes. No party stepped up to purchase the land via a tax deed when made available in 1921, and the plant and land apparently were left unoccupied for five years.[70]

In the late 1920s, two parties acquired parts of the 44.5-acre tax deed parcel. James F. Weaver purchased from the county about 10 acres at the north end of the Spring Meadow Lake site in 1926, and two years later George F. Jacoby received title to roughly 35 acres.[71] Weaver's interest in the property is unknown, but there is no indication of an industrial use in the records consulted. Jacoby, on the other hand, valued the land for its gravel, and immediately embarked on a 27-year sand-and-gravel operation at the old mill site.

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[65] This estimated production total of 13,500 tons of manganese ore assumes that the Helena plant treated 7,000 tons of the ore in 1917, 3,500 tons in 1918, and 3,000 tons in 1919. "Helena Plant Works Ore Needed for War," *The Helena Independent* (A035); *Mineral Resources, 1918,* 644 (A038); U.S. Geological Survey, *Deposits of Manganese Ore in Montana, Utah, Oregon, and Washington,* Pardee, 142-43 (A037).

[66] "Helena Plant Works Ore Needed for War," *The Helena Independent* (A035); *Engineering and Mining Journal* vol. 107, no. 6 (19 April 1919): 728 (A043); *Mines Handbook* vol. XV (1922): 1095 (A039).

[67] *Helena, Montana: A Rich Spot on Earth*, ca. late 1919 [author and publisher unknown], incomplete copy on file, Montana Department of Environmental Quality, Mine Waste Cleanup Bureau, Helena (A048).

[68] This estimated production total of 9,000 tons of sulphide ore assumes the Helena plant treated 5,000 tons of the ore from the Valley Forge dump between spring 1917 and early 1918, 2,500 tons of the ore from the Rimini District in 1920, and 1,500 tons of the ore from the Liverpool Mine in 1920 as well. "Helena Plant Works Ore Needed for War, *The Helena Independent*; *Mineral Resources, 1920*, 210-11 (A046).

[69] "Helena Plant Works Ore Needed for War," *The Helena Independent* (A035).

[70] Lewis and Clark County Clerk and Recorder, Deed Book 96, p. 208 (B013).

[71] Lewis and Clark County Clerk and Recorder, Deed Book 81, p. 272 (B042), Deed Book 97, p. 143 (B043).

Figure 12. Undated panoramic photograph of old Stedman Foundry complex, showing possible cyanide tanks right of New York-Montana Testing and Engineering mill building (courtesy of Kathy Fehlig).

In 1928, George F. Jacoby was actively involved in the general contracting business run by his father, Charles Jacoby, and known as Frank Jacoby and Son.[72] The firm had been largely responsible for cleanup after a large fire had destroyed part of Helena's Main Street in that year. Supposedly in response to a need for materials for reconstruction, George Jacoby saw an opportunity to expand beyond the general contracting business. The gravel at the former New York-Montana Testing site proved to be of high quality, and early in the year Jacoby purchased the land to be used as a sand and gravel pit and the base for his operations.[73]

In partnership with Thomas Brownlow, he formed Helena Sand and Gravel. Jacoby served as the general manager, while Brownlow was the plant foreman. Together, they erected a 70-cubic-yard-per-hour plant, and by summer of the following year the business was well underway. Helena Sand and Gravel used the old mill buildings to warehouse supplies, store equipment, and provide office space.[74] An historic photograph indicates that its main gravel pit was directly north of the building complex, although at some point there were some shallow excavations at the far northeast edge of the Spring Meadow Lake site (Figure 13).

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[72] Merrill Burlingame and K. Ross Toole, *A History of Montana*, Vol. 1 (New York: Lewis Publishing, 1957), 125 (A049).

[73] Harriett Meloy, "A Lake is Born," *[Helena] Independent Record*, 29 May 1997, p. 5A (A050).

[74] Al Gaskill, "George Jacoby and Tom Brownlow Have Huge Gravel Plant," *Helena Daily Independent*, 11 August 1929, p. 4 (A051).

Figure 13. Late 1940s aerial photograph of Helena Sand and Gravel plant at Spring Meadow Lake site (courtesy of Kathy Fehlig).

Initially, Helena Sand and Gravel confined its operations to sand and gravel supply, providing material to local general contractors and a concrete works which produced concrete pipe and to regional road contractors. Very briefly, it also set up a gold washing plant, under the assumption that the Ten Mile floodplain gravels were gold-bearing.[75] There is no evidence that the gold plant was ever successful, however.

Eventually, Helena Sand and Gravel material was shipped to large, regional projects. The plant supplied railroad ballast as an important component of its operation, mainly during the pre-war period. It also sent gravel to Fort Peck for use at both the townsite and dam site. In later years, material also was shipped to Spokane.[76]

In the mid-1930s, Jacoby added several lots in the West Helena Townsite Addition to his holdings. These lay just beyond the east edge of his 35-acre parcel.[77] But the largest expansion involved a series of land acquisitions between 1943 and 1946, when he accumulated an additional 32.5 acres plus several more lots and blocks in the West Helena Townsite Addition. The acquired

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[75] Ibid. (A051).

[76] D.W. Bowler, "Helena Sand and Gravel Expands Facilities for Paving," *[Helena] Independent Record*, 28 August 1951, Section 2, p. 1 (A052); Paul Pacini, "A Park Made Visible," *Montana Outdoors* 17, no. 4 (1986): 17 (A053); Carson Construction Firm Buys Helena Sand and Gravel Co. in Major Business Transaction," *[Helena] Independent Record*, 7 September 1955, p. 1 (A054).

[77] Lewis and Clark County Clerk and Recorder, Deed Book 115, p. 325 (B047).

land included the 10-acre parcel that James Weaver had purchased from the county in 1926, plus additional acreage Weaver had purchased from the Kessler family.[78] Shortly after the end of World War II, Jacoby held a total of 54 acres, exclusive of the lots and blocks in the West Helena Townsite Addition.

At the same time he was accumulating land for his Helena Sand and Gravel operations, Jacoby was also adding to plant capabilities. In 1945, he erected a ready-mix plant to serve Helena's anticipated post-war building boom.[79]

The last major facilities expansion for Helena Sand and Gravel dates to 1951 when a cold-mix asphalt plant was added (Figure 14). Jacoby purchased equipment to lay the cold-mix product on roads and parking lots.[80]

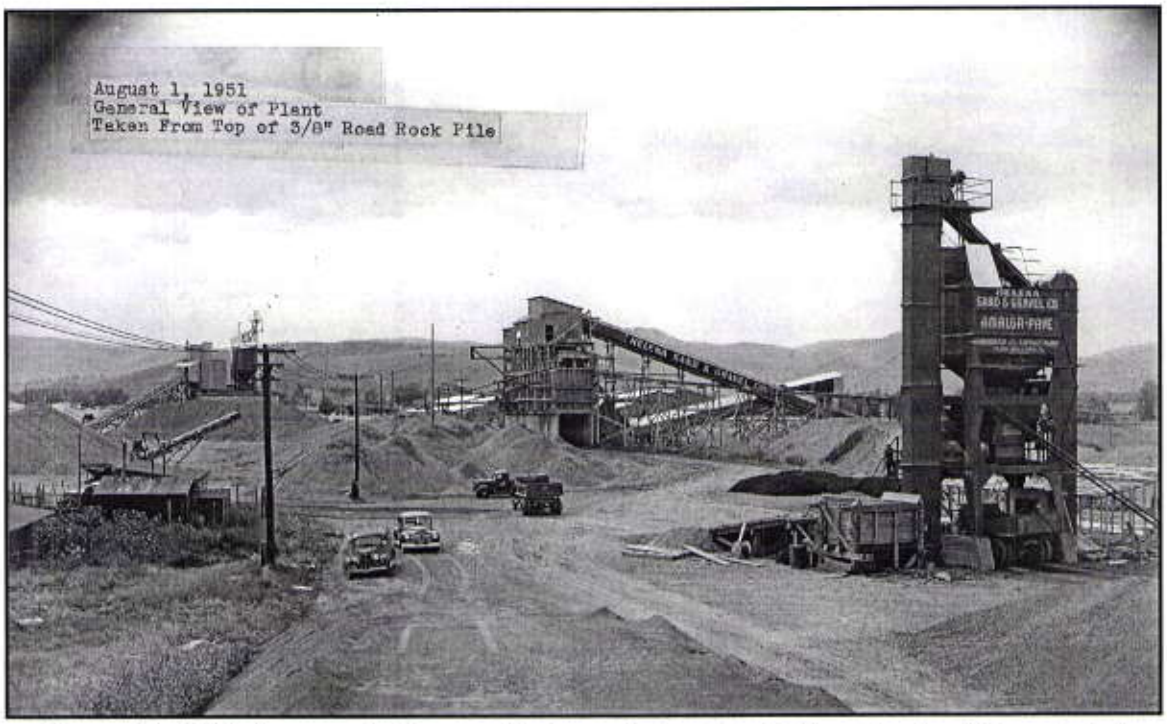

Figure 14. 1951 photograph of new cold-mix asphalt outfit at Helena Sand and Gravel plant (courtesy of Kathy Fehlig).

[78] Lewis and Clark County Clerk and Recorder, Deed Book 126, pp. 596 and 605 (B049, B050), Deed Book 135, p. 28 (B051), and Deed Book 137, p. 62 (B052).

[79] Bowler, "Helena Sand and Gravel Expands Facilities (A052)."

[80] Ibid. (A052)

Just four years later, Jacoby agreed to sell the entire Helena Sand and Gravel plant and land to W.A. "Bill" Carson, the owner of Carson Construction Company. He also agreed to stay on in an advisory capacity, while the business continued to operate under the Helena Sand and Gravel name.[81] In 1957, Carson Construction completed the purchase of the property.[82] It operated the sand and gravel pit and plant to 1964.[83] The pit and plant closed for good after that.

Excavation activities at the Spring Lake Meadow site during its 40-year period of use as a sand and gravel pit must have removed considerable amounts of the tailings that had been allowed to flow across the ground surface during early milling operations (Figure 15). Helena Sand and Gravel, which operated the gravel pit for most of the period, would have handled the largest quantity of this mill waste. Both it and its successor, Carson Construction, undoubtedly considered the tailings merely as material suitable for use, same as the property's natural deposits of sand and gravel.

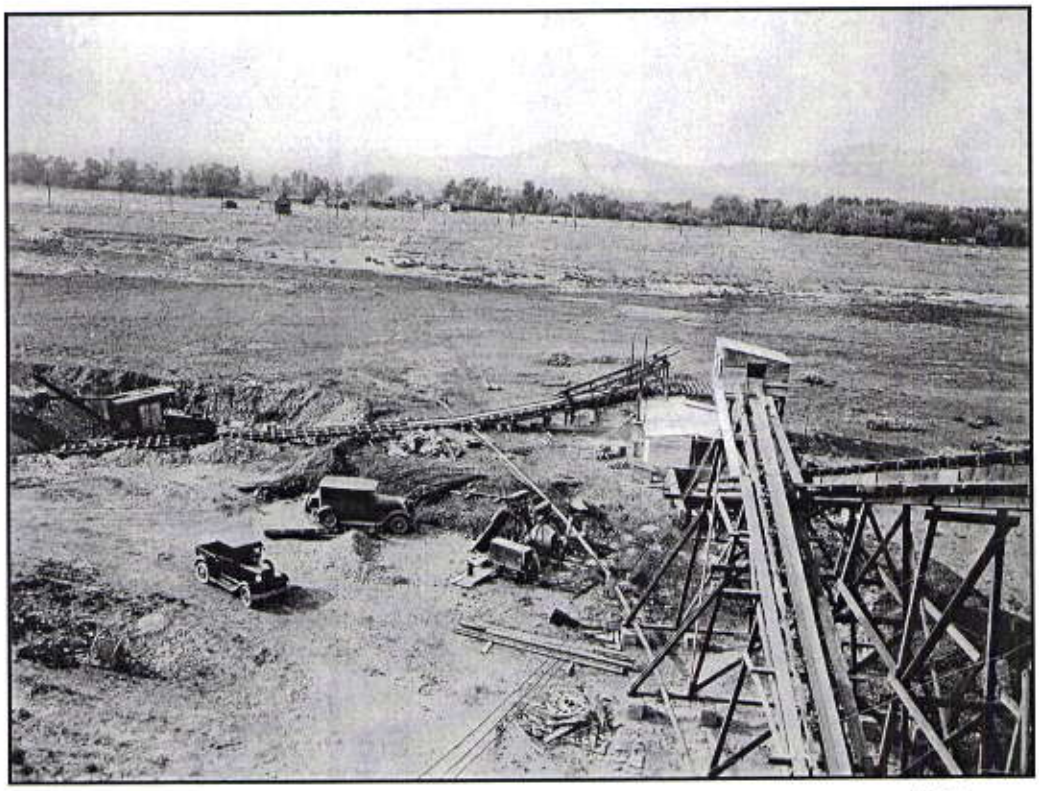

Figure 15. Undated photography showing the gravel pit adjacent to probable deposit of old mill tailings, the large flat area void of vegetation in background (courtesy of Kathy Fehlig).

[81] "Carson Construction Firm," *[Helena] Independent Record* (A054); *Minerals Yearbook 1956*, 701 (A055).

[82] Lewis and Clark County Clerk and Recorder, Deed Book 195, p. 133 (B055).

[83] Pacini, "Park Made Visible," 17 (A053).

In late 1964, most of the property passed to Blanche S. Anderson, who immediately sold it to the Lewis and Clark Development Company.[84] At about the same time, Carson Construction deeded a 5.8-acre parcel which encompassed the old foundry site to the Montana Powder and Equipment Company.[85] While Montana Powder and Equipment used the buildings on the foundry parcel for sales and equipment storage for several years, the remaining gravel pit parcel was held more or less for land speculation. Perhaps Lewis and Clark Development and certainly the subsequent owner, Reber Realty and Development Company Inc., had plans for residential development around the old, flooded gravel pit, but never completed that development project.[86]

In 1981, the State of Montana purchased the old 42-acre gravel pit parcel and an additional 4.1-acre parcel (Parcel C) adjacent to the southwest from Reber Realty and Development. The state used coal tax funds for the purchase, specifically for the purpose of establishing a state park at Spring Meadow.[87] The Montana Department of Fish, Wildlife & Parks has administered the site ever since. It added the 5-acre old foundry parcel to the state holdings in late 2002, purchasing it from the Mikal Kellner Foundation.[88] That foundation had acquired the foundry parcel several years previous from Walter and LaDonna Bell, then owners of Montana Powder and Equipment.[89]

Corporate Owners and Operators

RTI prepared brief corporate histories for companies and partnerships which owned the foundry, Coady, and/or gravel pit parcels (Figure 5) between 1892 and 1964 (exclusive of the Great Northern Railway and the Montana National Bank of Helena). Subsequent owners and those which held the West Helena Townsite Addition and C parcels were not researched because their involvement with the generation of industrial wastes or their removal from the Spring Meadow Lake site was negligible. Individuals that owned or operated at the site without the benefit of a formal partnership or corporate status are not discussed.

Each history presented here begins with a brief review of the company's involvement at the site. Much of the other information is taken from the records of the Montana Secretary of State. None of the companies or partnerships discussed survives to the present as an active business.

Carson Construction Company

The Carson Construction Company owned and operated the gravel pit and plant at the Spring Meadow Lake site from 1957 to 1964. During that time, the company must have excavated and processed some old mill tailings at its plant. However, most of the waste material on the property generated in the 1910s and early 1920s had likely already been removed.

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[84] Lewis and Clark County Clerk and Recorder, Deed Book 236, p. 648 (B057).

[85] Lewis and Clark County Clerk and Recorder, Deed Book 236, p. 656 (B058).

[86] Lewis and Clark County Clerk and Recorder, Deed Book 261, p. 475 (B060); Meloy, "Lake is Born (A050)."

[87] Pacini, "Park Made Visible," 17 (A053).

[88] Lewis and Clark County Clerk and Recorder, Microform Document 26, p. 2653 (B066).

[89] Lewis and Clark County Clerk and Recorder, Microform Document 16, p. 4541 (B064).

W. A. "Bill" Carson, Ruth Carson, and J. W. Marlow, all of Helena, incorporated the Carson Construction Company under Montana law in May 1946. They proposed the company function as "a general construction, engineering and construction business." Carson Construction's capital stock was set at $250,000, divided into 2500 shares with a par value of $100 each. The three incorporators held one share of stock apiece, and together they comprised the company's initial board of directors. Carson Construction had a 40-year term of existence. Its principal place of business was Helena.[90]

Carson Construction's first annual report to the Montana Secretary of State covered its initial 7½ months of business, or the year ending December 31, 1946. In addition to retaining a seat on the board of directors, the three incorporators had each become an officer in the company. W. A Carson held the office of president, Ruth Carson was vice president, and Marlow served as the secretary-treasurer. The company had issued $23,000 of its stock by then, as well as amassed a $102,408.95 debt.[91]

Under the management of W. A. Carson, Carson Construction's scope of operations rapidly expanded over the next several years. During that time, the company completed construction projects throughout the Northwest and opened offices in Los Angeles, Seattle, and Anchorage, Alaska. Helena, in the meanwhile, remained its corporate headquarters. As of the early to mid-1950s, the main focus of the company's work involved the construction of military facilities in Haines, Alaska.[92]

In September 1955, W. A. Carson reached an agreement with Helena Sand and Gravel for the purchase of the gravel pit land and plant at the Spring Meadow Lake site. The agreement specified that Carson would assume operational control of the plant in the December.[93] At that same time, Carson Construction probably acquired all but three shares of Helena Sand and Gravel's stock, while its president (W. A. Carson), vice president (Ruth Carson), and secretary-treasurer (John Dahl) became Helena Sand and Gravel's president, vice president and secretary-treasurer, respectively.[94] Over the next few weeks, W. A. Carson shutdown Carson Construction's out-of-state offices in preparation of devoting all of his work efforts to the gravel plant's operation. He also offered Carson Construction's equipment up for sale, save that equipment suitable for use at the gravel pit and plant.[95]

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[90] Montana Secretary of State, Corporations, Carson Construction Company, Folder D-020166, "Articles of Incorporation," 14 May 1946 (C001).

[91] Ibid., "Annual Report [for the year ending December 31, 1946]," 17 February 1947 (C001).

[92] "Carson Construction Firm," *[Helena] Independent Record* (A054).

[93] Ibid. (A054).

[94] Montana Secretary of State, Corporations, Carson Construction Company, Folder D-020166, "Annual Report [for the year ending December 31, 1955]," 26 March 1956 (C001); "Agreement of Merger of Western Motels, Inc. and Helena Sand and Gravel Co. into Carson Construction Company," 1 April 1957; "Certificate [of Carson Construction's stockholder approval of the merger], 1 April 1957 (C001); Montana Secretary of State, Corporations, Helena Sand and Gravel Company, Folder D-025094, "Annual Report [for the year ending December 31, 1955]," 26 March 1956 (C002).

[95] "Carson Construction Firm," *[Helena] Independent Record* (A054).

W. A. Carson operated the gravel pit and plant under the guise of Helena Sand and Gravel Company until April 1, 1957. On that day, Helena Sand and Gravel merged into Carson Construction and ceased its corporate existence. As part of that process, all of Helena Sand and Gravel's stock was canceled and Carson Construction received the warranty deed to the land and plant at the gravel pit site. Another firm in which Carson Construction was the majority stockholder, Western Motels, Inc., also was party to the merger. In common with Helena Sand and Gravel, it was fully absorbed into Carson Construction.[96]

Carson Construction owned and operated the gravel pit and plant into 1964.[97] W. A. Carson continued to serve as the company's president for another year or so after that. Meanwhile, Daniel Dykstra succeeded Ruth Carson in the office of vice president and Gordon T. Merrill replaced John Dahl as the company's secretary-treasurer.[98]

Carson Construction submitted its last annual report to the Montana Secretary of State in April 1969. Officials listed in that report included Bartley Carson (president and director); Nancy C. Brown (vice president and director), and Gordon Merrill (secretary-treasurer and director). All three of these individuals lived in Helena.[99]

In late 1980, the Montana Secretary of State declared Carson Construction involuntarily dissolved for its failure to file annual reports.[100] Carson Construction's business rights were not revived after that.[101]

Helena Sand and Gravel (Partnership and Corporation)

Helena Sand and Gravel operated a sand and gravel pit, ready-mix plant, and cold-mix asphalt plant at the Spring Meadow Lake site as a partnership from 1928 to early 1955, and then as a corporation until 1957. During that entire time, the business was not involved in any ore processing. However, it must have removed from the site large quantities of mill waste, tailings that had been allowed to flow across the ground surface during earlier milling operations.

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[96] Montana Secretary of State, Corporations, Carson Construction Company, Folder D-020166, "Agreement of Merger," 1 April 1957 (C001); "Certificate [of Carson Construction's stockholder approval of the merger], 1 April 1957 (C001); Lewis and Clark County Clerk and Recorder, Deed Book 195, p. 133 (B055).

[97] Lewis and Clark County Clerk and Recorder, Deed Book 236, p. 648 (B057), p. 656 (B058).

[98] Montana Secretary of State, Corporations, Carson Construction Company, Folder D-020166, "Annual Report [for the year ending December 31, 1963]," 21 February 1964 (C001); "Annual Report [for the year ending December 31, 1965]," 11 May 1966 (C001).

[99] Ibid., "State of Montana Annual Report of Corporation [for 1968]," 27 January 1969 (C001); "Business Entity Search – Business Details," accessed on-line 11 January 2005 (C001).

[100] Ibid., "Certificate of Involuntary Dissolution," 29 December 1980 (C001).

[101] Ibid., "Business Entity Search – Business Details," accessed on-line 11 January 2005 (C001).

Helena Sand and Gravel began its life history in 1928 when George Jacoby and Thomas Brownlow formed a partnership to operate a sand and gravel pit. They took the name Helena Sand and Gravel.[102] With one minor exception, however, the land where the pit lay was held in George Jacoby's name.[103]

At Helena Sand and Gravel, Jacoby served as the president and general manager, while Brownlow was the plant foreman.[104] This relationship lasted at least through 1937. At some unknown date after that Brownlow left the business.[105]

Perhaps in anticipation of offering the gravel pit land and plant up for sale, in January 1955 George Jacoby took steps to establish Helena Sand and Gravel as a legally recognized business. At that time, he filed articles of incorporation for the Helena Sand and Gravel Company with the Montana Secretary of State. In addition to George Jacoby, Esther Jacoby and William Wallace signed the articles. The company's capital stock was set at $50,000, divided into 500 shares with a par value of $100 apiece. The three incorporators held one share of stock each, and together they comprised the company's initial board of directors. Helena Sand and Gravel estimated a 40-year term of existence.[106]

Later that same fall, Jacoby agreed to sell Helena Sand and Gravel's business and land to W. A. "Bill" Carson, president of the Carson Construction Company. Carson presumably assumed operational control of the gravel pit and plant on December 1, 1955.[107] At that same time, his Carson Construction seems to have acquired all but three shares of Helena Sand and Gravel's stock. In addition, W. A. Carson replaced Jacoby as Helena Sand and Gravel's president, while Ruth Carson became vice president of the company and John E. Dahl its secretary-treasurer. Ruth Carson and Dahl held the same such positions at Carson Construction.[108]

Under Carson's management, Helena Sand and Gravel continued to operate the gravel pit and plant until April 1, 1957. On that day, Helena Sand and Gravel merged into Carson Construction and ceased its corporate existence. As part of that process, all of Helena Sand and Gravel's stock was

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[102] Gaskill, "George Jacoby and Tom Brownlow" (A051); Bowler, "Helena Sand and Gravel (A052).

[103] Lewis and Clark County Clerk and Recorder, Deed Book 97, pp.143 and 145 (B043, B045), Deed Book 115, p. 325 (B047), Deed Book 126, pp. 596 and 605 (B049, B050), Deed Book 135, p. 28 (B051), Deed Book 137, p. 62 (B052).

[104] Gaskill, "George Jacoby and Tom Brownlow (A051)."

[105] R.L. Polk & Co., *Polk's Helena City Directory* vol. 38 (Salt Lake City: 1937), 54 (A056); Pacini, "Park Made Visible," 17 (A053).

[106] Montana Secretary of State, Corporations, Helena Sand and Gravel Company, Folder D-025094, "Articles of Incorporation," 1 December 1954, filed 14 January 1955 (C002).

[107] "Carson Construction Firm," *[Helena] Independent Record* (A054).

[108] Montana Secretary of State, Corporations, Helena Sand and Gravel Company, Folder D-025094, "Annual Report [for the year ending December 31, 1955]," 26 March 1956 (C002); Montana Secretary of State, Corporations, Carson Construction Company, Folder D-020166, "Annual Report [for the year ending December 31, 1955]," 26 March 1956 (C001); "Agreement of Merger," 1 April 1957; "Certificate [of Carson Construction's stockholder approval of the merger]", 1 April 1957 (C001)

canceled and Carson Construction received the warranty deed to the land and plant at the gravel pit site.[109] Helena Sand and Gravel's corporate charter was never reinstated after that.[110]

New York-Montana Testing and Engineering Company

The New York-Montana Testing and Engineering Company was the party responsible for almost all of the mill waste deposited at the Spring Meadow Lake site during the property's sole period of use as an ore reduction facility. From the time that the company first opened a custom concentrator at the 6.334-acre foundry parcel in early Spring 1917 until it shut the facility down for good in late 1920, it treated as much as, if not more than, 13,500 tons of manganese ore from Butte and Philipsburg along with 9,000 tons of local sulphide ore. Tailings discharged from the concentrator were dumped nearby, flushed with water, and allowed to flow across the ground uncontained. In the midst of its operation, the company acquired nearly 40 acres (today's Coady parcel) just north of the foundry parcel, the area into which its tailings presumably had spread.

New York-Montana Testing and Engineering was incorporated under the laws of Montana in September 1916 by Charles E. Fryberger, Wilton G. Brown, and Hugh Smith, all of Helena. Its capital stock was set at $100,000, divided into 100,000 shares with a par value of $1 each. Fryberger, Brown, and Smith controlled the initial board of directors, and they each held five shares of stock. The company's principal place of business was Helena and it had a 40-year term of existence.[111]

Soon after the incorporation, Fryberger became the company's president, Brown assumed the office of secretary-treasurer, and the vice president's office was filled by Frank Eichelberger, also of Helena. Fryberger and Eichelberger likely collaborated on the design and construction of the company's concentrator at the old Stedman foundry, and jointly managed and supervised operations at the reduction works following its completion. Brown, meanwhile, took charge of the assay laboratory and testing plant.[112]

Most likely in 1918 but no later than 1920, the U.S. Manganese Corporation acquired 91% of New York-Montana Testing and Engineering's stock. Fryberger and Eichelberger retained control of the day-to-day operations of the concentrator after that, and they remained president and vice president of New York-Montana Testing and Engineering, respectively. Meanwhile, Ralph T. Hopkins replaced Brown as secretary-treasurer.[113]

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[109] Montana Secretary of State, Corporations, Carson Construction Company, Folder D-020166, "Agreement of Merger," 1 April 1957 (C001); "Certificate [of Carson Construction's stockholder approval of the merger], 1 April 1957 (C001); Lewis and Clark County Clerk and Recorder, Deed Book 195, p. 133 (B055).

[110] Montana Secretary of State, Corporations, Helena Sand and Gravel Company, Folder D-025094, "Business Entity Search – Business Details," accessed on-line 11 January 2005 (C002).

[111] Montana Secretary of State, Corporations, New York-Montana Testing and Engineering Company, D-010388, "Articles of Incorporation," 20 September 1916 (C003).

[112] "Concentrates are Sent to Smelter," *[The Helena Independent ?]* (A030); R. L. Polk & Co., *Helena City Directory, 1917*, 328 (A031).

[113] R. L. Polk & Co., *Helena City Directory, 1920,* 238 (A057); *Mines Handbook* vol. XV (1922): 1095 (A039).

By early 1920, New York-Montana Testing and Engineering mortgaged its property to secure a $35,000 bond. U.S. Manganese held a $15,000 share of the bond, while a total of $8000 remained outstanding "in [the] treasury of New York-Montana Company."[114] New York-Montana Testing and Engineering probably defaulted on its mortgage payment after closing down the reduction works for good later in that year.

In October 1921, the Lewis and Clark County Treasurer acquired New York-Montana Testing and Engineering's ownership interest in the foundry and Coady parcels.[115] There are no known accounts that the company resumed business after that. Its 40-year term of existence expired in 1946; an extension was never filed.[116]

Northwestern Metals Company

The Northwestern Metals Company was the first of the two companies that reduced ore and deposited tailings at the Spring Meadow Lake site. After purchasing the 6.334-acre foundry parcel in late 1909, it refurbished the old stone buildings and began developing a mill for handling complex zinc ores using the Baker-Burwell process, one of several variants of dry chlorination processing seeing at least experimental application at the time. While Northwestern Metals hoped to establish a custom business serving the mining districts of the greater Helena region, operations at its Baker-Burwell mill remained limited to tests runs on small lots of ore over the next several years. Deep in debt, it finally abandoned the reduction works in the summer of 1915, without ever having placed the facility into commercial production. In the following year, the County Sheriff sold the 6.334-acre foundry parcel and most of the improvements thereon at public auction.

Montana mining entrepreneur, Marcus L. Hewett, along with Bostonians Percy F. Wood and C. B. Stetson, incorporated the Northwestern Metals Company under the laws of Montana in September 1909. The company's capital stock was set at $3 million, divided into 300,000 shares with a par value of $10 each. The incorporators received 10 shares of stock each, and together were charged to "govern and control" the company's business affairs until election of the board of directors. Northwestern Metals was to transact its business affairs in Boston, Massachusetts and Helena, Montana. The corporate term of existence was set at 40 years.[117]

Before December 1909, Northwestern Metals had a full slate of officers and a board of directors, while $150,000 of its stock had been issued. Officers of the company included Hewett (president), ex-lieutenant governor of Montana Archibald E. Spriggs (vice president), and Wood (vice president). All three officers held a seat on the board of directors along with Stetson; C.H. Innes, also of Boston; Montana's former governor, Samuel Hauser; H. A. Nash of Weymouth,

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[114] *Mines Handbook* vol. XV (1922): 1095 (A039).

[115] Lewis and Clark County Clerk and Recorder, Deed Book 96, p. 208 (B013).

[116] Montana Secretary of State, Corporations, New York-Montana Testing and Engineering Company, D-010388, "Business Entity Search – Business Details," accessed on-line 10 December 2004 (C003).

[117] Montana Secretary of State, Corporations, Northwestern Metals Company, D-006373, "Articles of Incorporation," 9 September 1909 (C004).

Massachusetts; A. W. Burwell, one of the developers of the Barker-Burwell process; and another metallurgist, C.C. Titus.[118] Management of operations at the company's Barker-Burwell mill was placed in Titus' hands.[119]

The composition of Northwestern Metals' board of directors as well as its elected officials changed fairly regularly over the next several years. Hewett remained president until 1912. By then, the board of directors no longer included any of its original members except Titus.[120] The company's officers as of mid-1914 were Felton Bent, president; Marcus Hewett, vice president; and S. K. Markoe, treasurer.[121]

Northwestern Metals likely ceased all business activities for good after the 1915 shutdown of its Baker-Burwell mill. Its 40-year term of existence expired in 1949. An extension was never filed.[122]

Stedman Foundry and Machine Company

The Stedman Foundry and Machine Company was the first industrial concern to locate at the Spring Meadow Lake site. After constructing a foundry, machine shop, and various support structures on the 6.334-acre foundry parcel in 1892, it began manufacturing machinery and hardware there. The foundry remained in operation as late as 1901. Soon after that, company lost its ownership rights to the foundry parcel and the improvements thereon.

The Stedman Foundry and Machine Company was incorporated in July 1890 to assume control of John Stedman's foundry business. The latter had informally operated in Helena since 1877. In addition to John Stedman, the company's incorporators included A. M. Holter, L. C. Phelps, J. A. Davidson, R. C. Wallace, D. A. Cory, and J. B. Wallace, all of Helena. The incorporators set the company's capital stock at $100,000, divided into 1,000 shares with a par value of $100 each. All seven were named an initial trustee of the company. Stedman Foundry and Machine had a 20-year term of existence. Its principal place of business was Helena.[123]

John Stedman became Stedman Foundry and Machine's first president and general manager. He also acquired a majority share of the company's stock. Stedman Foundry and Machine remained under Stedman's management until his untimely death in 1897.[124]

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[118] Hewett, Wood and Co., "Northwestern Metals Company (A012)."

[119] *Copper Handbook* vol. X (1911): 1320 (A009).

[120] Ibid. (A009); *Copper Handbook* vol. XI (1912-1913): 668 (A022); R. L. Polk & Co., *Helena City Directory, 1911*, 351 (A058); *1912*, 348 (A059).

[121] R. L. Polk & Co., *Helena City Directory, 1914*, 323 (A060).

[122] Montana Secretary of State, Corporations, Northwestern Metals Company, D-006373, "Business Entity Search - Business Details," accessed on-line 10 December 2004 (C004).

[123] Montana Secretary of State, Corporations, The Stedman Foundry and Machine Company, Folder D-00128, "Articles of Incorporation," 1 July 1890 (C005).

[124] Miller, *Illustrated History of the State of Montana*, 151 (A001); "Taken Suddenly," *Helena Weekly Herald* (A002).

Nicholas Kessler likely took over as the company's president after that.[125] Kessler, who had sold the foundry parcel to Stedman Foundry and Machine Company in 1894,[126] probably held a significant share of the company's stock as well.

In June 1901, Stedman Foundry and Machine obtained a $23,000 loan from the Montana National Bank in Helena. The bank's president co-signed the loan. After completing only two payments by that September, the company defaulted on the loan. In response, the bank's president filed a complaint against the company in district court.[127] A little over a year later, the court ordered that Stedman Foundry and Machine's ownership interests in the foundry parcel and the improvement thereon be sold at public auction.[128]

While unverified, it seems probable that Stedman Foundry and Company went out of business for good after that. The company's corporate charter expired at term in 1910. There have been no known attempts to revive the company since then.[129]

Western Improved Wire Fence Company of the United States of America

The Western Improved Wire Fence Company owned the foundry parcel at the Spring Meadow Lake site from 1906 to early 1910. During that period, the company manufactured at the former foundry wire fences, fence posts and other fencing supplies. It wasn't until after the company sold the parcel that the site saw use as an ore reduction plant.

In November 1903, the Western Improved Wire Fence Company of the United States of America was incorporated under Montana law by Bert B. Wood of Bozeman, Elmer J. Marks of Butte, and Chris J. Bausch of Helena. The incorporators set the company's capital stock at $25,000, divided into 25,000 shares with a par value of $1 each. They received 2,500 shares of stock apiece and were called to serve as the company's initial directors or trustees. Western Improved Wire Fence had a 20-year term of existence. Bozeman was its principal place of business.[130]

In July 1906, Western Improved Wire Fence's board of directors carried a motion to relocate the company's business and offices from Bozeman to Helena. C. J. Bausch was the company's secretary at the time.[131] Four months later, the company purchased the foundry parcel at the Spring Meadow Lake site.[132]

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[125] Alfred B. Sibley, Plaintiff vs. Stedman Foundry and Machine Company, Defendant. This 1900 complaint is the only document found by RTI which names Kessler as Stedman Foundry and Machine's president (A007).

[126] Lewis and Clark County Clerk and Recorder, Deed Book 35, p. 45 (B014).

[127] Ibid. (B014)

[128] Lewis and Clark County Clerk and Recorder, Deed Book 36, p. 255 (B015).

[129] Montana Secretary of State, Corporations, The Stedman Foundry and Machine Company, Folder D-00128, "Business Entity Search – Business Detail," accessed on-line 11 January 2005 (C005).

[130] Montana Secretary of State, Corporations, Western Improved Wire Fence Company of the United States of America, Folder D-004149, "Articles of Incorporation," 26 November 1903 (C006).

[131] Ibid., "Change of Place of Business," 16 July 1906 (C006).

[132] Lewis and Clark County Clerk and Recorder, Deed Book 33, p. 560 (B018).

In mid-January 1909, most of Western Improved Wire Fence's stockholders or their respective proxies met to consider a resolution to increase the company's capital stock from $25,000 to $100,000. A total of $21,428 worth of stock had been issued by then and was divided in shares between over 60 individuals. Chris J. Bausch was the company's majority stockholder, holding 2,500 shares. The resolution passed by an overwhelming vote in its favor.[133]

One year later, Western Improved Wire Fence sold the foundry parcel and the improvements thereon to a representative of the Northwestern Metals Company for $10,000. The company vacated the property soon after that. It is unknown, however, if it relocated its manufacturing plant or ceased business completely.

Western Improved Wire Fence's corporate existence expired at term in 1923. The company was never revived after that.[134]

CULTURAL RESOURCE ASSESSMENT

This section of the report presents the results of a field inventory of the site area conducted earlier this year. It also includes a discussion of previous investigations in and near the site area, and the results of those investigations. Typically, cultural resource reports contain broad historic context statements which identify land use history and the types of historic sites found in the vicinity. For this particular report, RTI finds that the owner/operator history of the previous section stands as a good context statement because it includes detailed information about historic land use in this part of West Helena.

Previous Research

At RTI's request, on February 10, 2005, the Montana State Historic Preservation Office conducted a search of its records for listings of inventories and previously-recorded sites in Section 23, Township 10 North, Range 4 West. The search identified a small number of sites in and near the project area and an equally small number of previous cultural resource investigations.

Just one previously-recorded site stands within the current project area, the Stedman Foundry (24LC1273; Figures 8 and 16). Listed on the National Register of Historic Places in 1996, at that time the historic site consisted of three stone buildings that had been built in the early 1890s to house a foundry. Later housing other industrial businesses, the buildings remained relatively little changed on the exterior, with the exception of some fenestration alterations. Just recently, one of the three buildings, the foundry/molding building, was destroyed by fire. The property still remains listed, however. It is described more fully in the following sub-section.

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[133] Montana Secretary of State, Corporations, Western Improved Wire Fence Company of the United States of America, Folder D-004149, "Certificate of Increase [of] Capital Stock," 3 September 1909 (C006).

[134] Ibid., "Business Entity Search –Business Details," accessed on-line 11 January 2005 (C006).

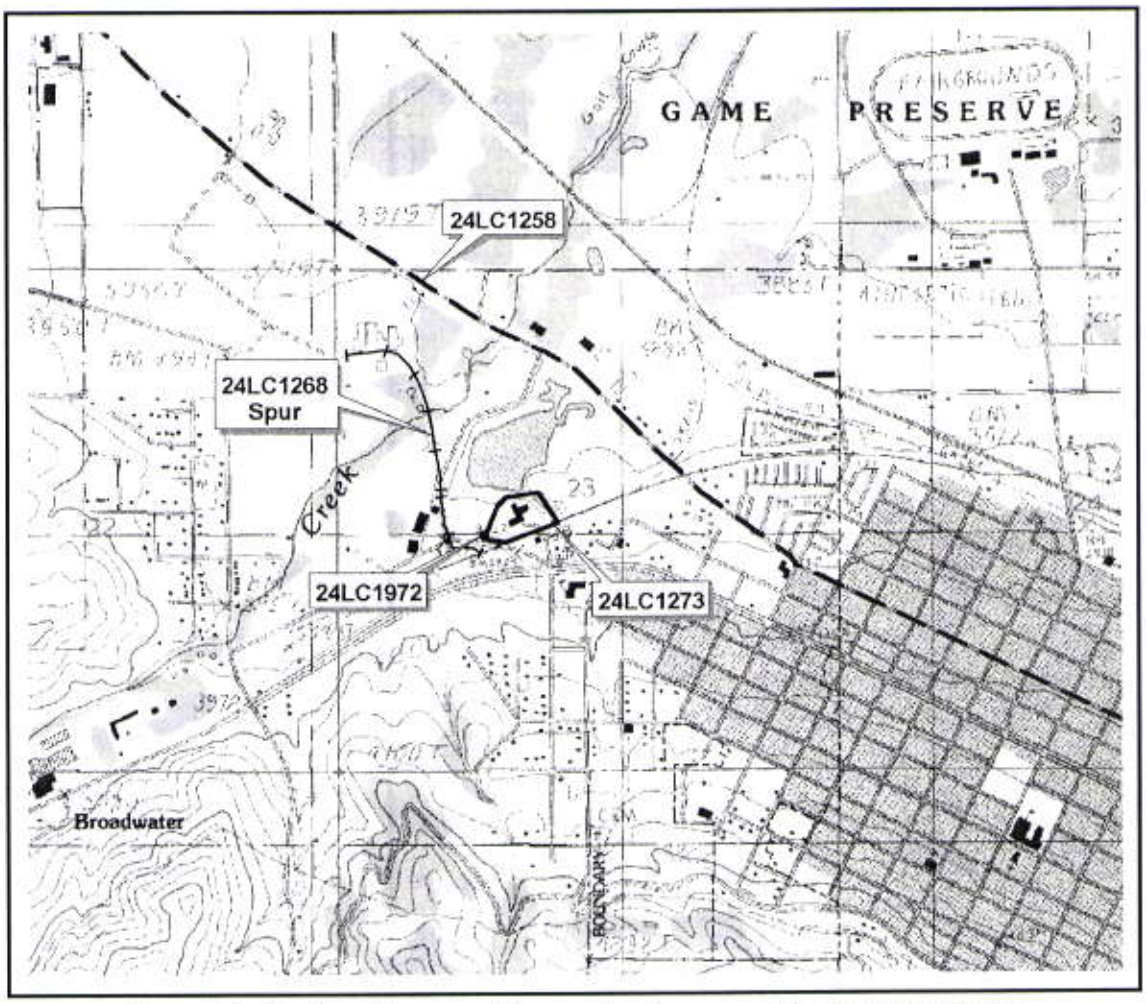

Figure 16. Portion of topographic map showing recorded cultural resources.

The file search also identified a single inventory within the current project area, that conducted in anticipation of a sewer line placement through the east side of Spring Meadow Lake Park.[135] No historic or archaeological sites were found. Another inventory, this one about 400 feet south of the current project at the intersection of Euclid and Broadwater Avenues, also yielded no sites.[136] Finally, the report of a 1986 inventory of a proposed gravel pit just west of the project area mentioned "two scatters of historic debris and a railroad bed" there.[137] Apparently none of the three was formally recorded. The railroad bed, however, is the Western Clay Railroad Spur documented elsewhere in this report.

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[135] Dori Passman, "Spring Meadow Lake Sewer Line and Road Report" (Bozeman: Montana Department of Fish, Wildlife and Parks, 1999.

[136] Jon Axline, "Cultural Resource Inventory of the Pedestrian Tunnel, Helena, in Lewis and Clark County, Montana" (Helena: Montana Department of Transportation, 2003).

[137] Dave Schwab, "Helena and Sand and Gravel Pit" (Helena: Montana State Historic Preservation Office, 1986).

One other site is adjacent to the current project area. According to General Land Office plats, the historic Helena-Deer Lodge stage line passed along the north edge of the current park, beginning in the late 1860s.[138] The stage road (24LC1258) has changed significantly since then, and the section next to the park no longer resembles its historic form. That road, now known locally as Country Club Avenue (formerly Hollins Avenue), has been widened and paved on more than one occasion. Its connection to intact remnants of the old stage road has been broken by modern road improvements and land development and use. The section of the Helena-Deer Lodge stage road that passed by the current project area is no longer recognizable as an historic road and is not National Register eligible.

Survey Results

Western Clay Manufacturing Company Railroad Spur (part of 24LC1268)

A small section of this railroad spur lies at the far southwest edge of the project area. The line, a part of the Helena and Red Mountain (Rimini) Branch of the Northern Pacific Railway, once served the Western Clay Manufacturing Company's brick and tile works and the Kessler Brewery (Figure 16). Most of the spur was abandoned by 1960, by which time both historic businesses had closed.

The spur reportedly was recorded as a site in 1986, when it was referred to as the "Kessler connector line."[139] It may have been considered a part of the Western Clay Manufacturing historic site (24LC789) recorded in 1985, but no site form or form amendment has been found. For this reason, and also to correct erroneous information provided in 1986, the spur is recorded here as if for the first time. Being a spur of the Helena and Red Mountain Branch, however, it is given that rail line's site number.[140]

History. In 1886, the Helena and Red Mountain Railroad laid track between the west edge of Helena and the mountain mining community of Rimini. Built specifically to access mines in the upper Tenmile Creek basin, the line also served a small number of businesses not far west of Helena.[141] These included the Broadwater Hotel, a luxurious complex of hotel rooms and a natatorium, set on the banks of Tenmile Creek and heated by natural hot springs. Closer to town was the Kessler Brewery, a business started in about 1865 which grew to become one of Montana's most successful breweries.

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[138] Patrick Rennie, "Department of Natural Resources and Conservation Site Report Form" for 24LC1258, Helena to Deer Lodge Stage Road (Helena: 1995), on file, Archaeological Records, University of Montana, Missoula.

[139] Schwab, "Helena and Sand and Gravel Pit."

[140] Note that the Helena and Red Mountain Branch has been recorded under at least two site numbers, 24LC1268 in the Rimini area and 24LC1747 in the West Helena area. RTI chose to use the site number assigned earliest, or 24LC1268.

[141] Taylor and Taylor, *Rails to Gold and Silver*, 50, 54.

The Helena and Red Mountain Railroad was organized by men with close ties to the Northern Pacific Railroad. Within months of the short line's incorporation, the Northern Pacific took direct control of the Rimini line and ran it as a branch line.[142]

At some unknown date, but almost certainly in the late 1880s or early 1890s, the Northern Pacific extended a spur to the Kessler Brick and Tile Works, which subsequently became known as the Western Clay Manufacturing Company. This 0.6-mile spur, which included a switch to a short line into the Kessler Brewery, allowed the brickworks to become one of the largest such facilities in Montana. Brick made there was delivered across Montana, and the company was consistently a major brick supplier between the turn of the twentieth century and about World War II.[143]

In 1925, the Northern Pacific pulled back its Rimini branch line to Broadwater and later to the Kessler Brewery area. The Western Clay spur presumably operated until the brickworks last produced in 1960.[144] Even after that, the spur apparently accessed the old brewery complex until 1985.[145]

Description. The 370-foot section of the Western Clay railroad spur that RTI observed in the field is set at ground level with no elevated grade. It appears simply as an irregular line of decayed railroad ties, some displaced and all overgrown with thick grass (Figures 17 and 18). All rail has been removed, but a small amount of ballast is still in evidence. The spur lays immediately to the east of a gravel road which accesses modern businesses housed in and around the old Kessler Brewery site.

To the south and east, or where the spur branched off from the Rimini branch line, the old spur has been completely obliterated. This obliterated segment amounts to about 10% of the total spur length. A construction business has erected its office there and laid a parking lot over part of what is presumed to have been the route of the line. To the north and west of the recorded segment, the condition of the line is irregular. About 250 feet of the old line immediately north of the recorded section has been removed, but most of the segment farther north to Tenmile Creek has its rails and ties in-place set basically at ground level. Also, the switch that allowed cars to enter the Kessler Brewery site still remain, as does some of the switching track (Figure 19). The condition of the grade north of Tenmile Creek is unknown.

Integrity. The integrity of the entire Western Clay railroad spur is probably poor. The beginning 10% of the line has been completely obliterated. The next 11-12%, that portion which RTI observed, is barely recognizable in the grass due to the absence of a grade and the poor condition of the decayed and scattered ties. The line condition farther north to Tenmile Creek is variable, with one part completely obliterated and another retaining its rail. Overall, the integrity of materials, design, and workmanship has been lost.

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[142] Ibid., 56.

[143] Quivik, *The Western Clay Manufacturing Company*, 10-13.

[144] Ibid., 14.

[145] Art Jacobsen, Personal communication to Mitzi Rossillon, February 2005.

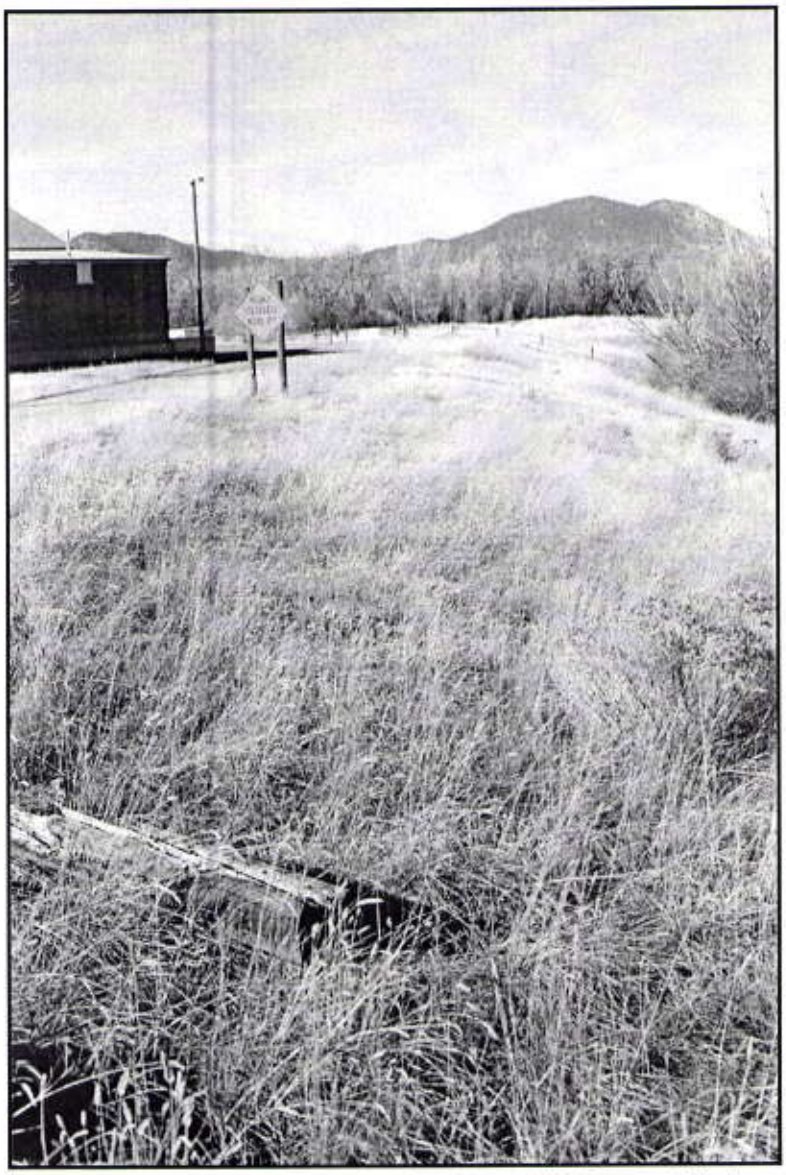

Figure 17. View of Western Clay Spur of Helena and Red Mountain Railroad (24LC1268) as it appears in southwest corner of project area, facing north.

National Register Eligibility. The Western Clay railroad spur of the Helena and Red Mountain Branch of the Northern Pacific Railway (24LC1268) is not eligible for listing in the National Register of Historic Places because it lacks integrity. Although associated with two important Helena businesses, Western Clay Manufacturing and the Kessler Brewery, the spur does not retain enough of its historic physical characteristics to serve as a good reminder of their importance. Instead, the historic buildings associated with those businesses are properties retaining superior integrity. The Western Clay complex is a National Register-listed property,[146] while the

[146] Quivik, *The Western Clay Manufacturing Company*, 30.

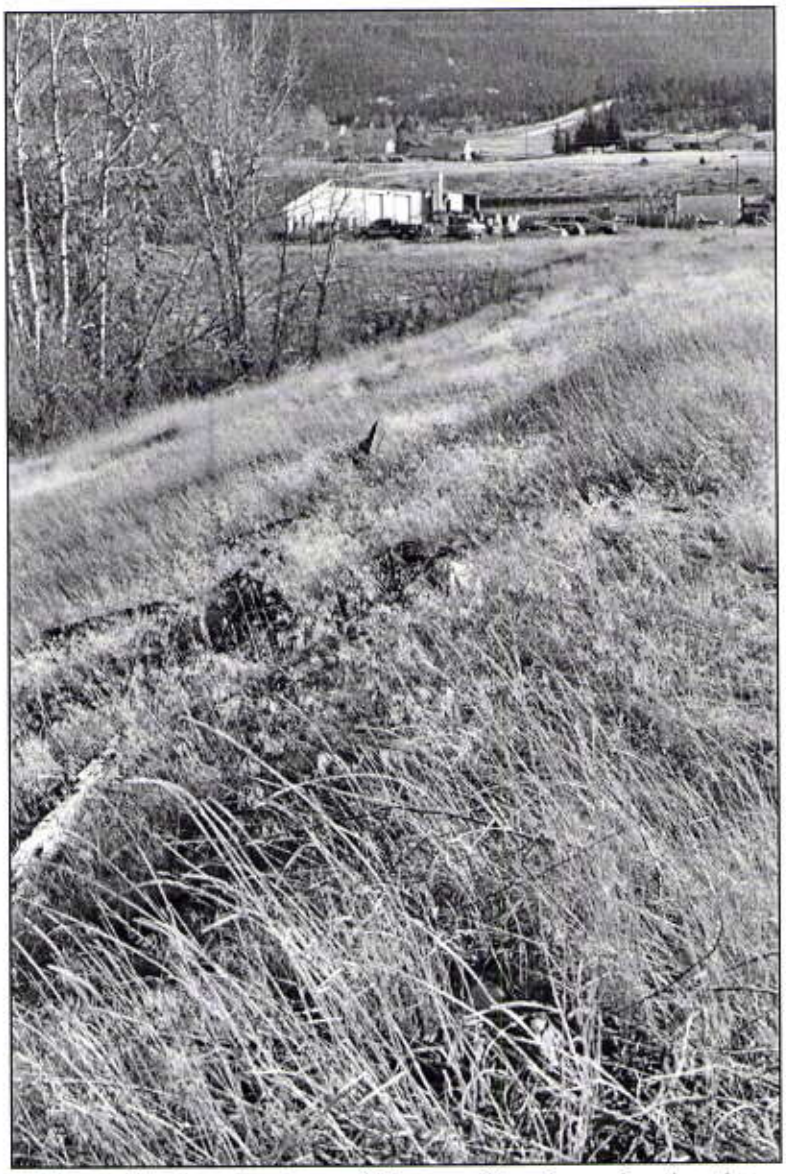

Figure 18. Another view of Western Clay Spur, showing ties thrown over top edge of adjacent historic gravel pit, facing south-southeast.

Kessler Brewery complex, even in its current scaled-down version, is more impressive as a reminder of the brewery's former glory than is the spur. Finally, the spur does not contribute to the National Register eligibility of the Helena and Red Mountain Branch line, much of which has been lost in the West Helena vicinity.[147]

[147] See Jon Axline, "Cultural Resource Inventory and Assessment: Brady Street/Joslyn Street - Helena (Helena: Montana Department of Transportation, 2002), 9.

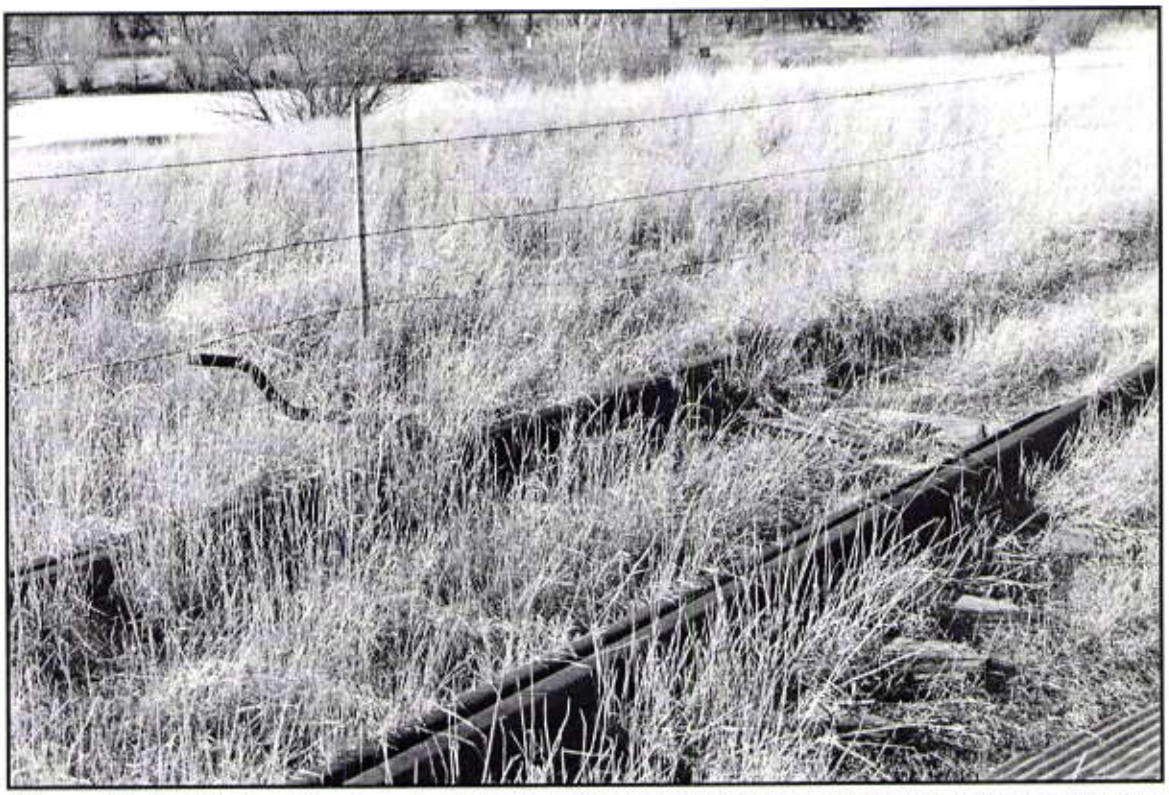

Figure 19. Switch handle where short track of Western Clay Spur began heading toward Kessler Brewery (north of current project area), facing north-northwest.

Stedman Foundry and Machine Company Complex (24LC1273)

This complex consists of two large stone buildings standing on a 5-acre parcel at the south edge of the Spring Meadow Lake site. Currently occupied by the Montana Wildlife Center, it dates to 1892 when the Stedman Foundry and Machine Company opened its business on this site. Although the property has suffered numerous changes over time as a series of industrial and other businesses took over the old foundry, two of the most striking historic buildings still dominate the parcel.

History. Readers are referred to the owner/operator history for detailed information about past owners and occupants.

Description. The Stedman Foundry and Machine Company complex originally consisted of three "new and substantial" stone buildings housing the foundry and molding room, pattern storage, and machine shop.[148] Other, small buildings on-site were long sheds for coal, iron, and sand; a warehouse; office; barn with corral; and water tank and oil houses. The stone buildings were "typical of early Montana industrial buildings, with low-pitched central gable roofs covering cavernous open interiors."[149]

[148] Sanborn Fire Insurance Co., "Map of Helena, Montana, 1892."

[149] Jiusto and Phipps, National Register Form for Stedman Foundry, sec. 7, p. 1.

When New York-Montana Testing and Engineering acquired the foundry site in 1916, it used the three sandstone buildings as the core of its milling operations. The former pattern house was then an office, laboratory, and assay office; the foundry was the mill itself; and the machine shop was used for storage. The small building used as office space by Stedman Foundry and Machine, later served as storage space, while the long sheds and barn had been removed. New York-Montana Testing and Engineering erected a collection of concrete towers, solution tanks, and a pump house beyond the east end of the former machine shop.[150]

As new owners took over the property through the years, additional changes were made to the complex, but the three stone buildings continued to stand more or less in their original form. For example, at some point concrete passageways/storage rooms were built between the old foundry and pattern house and between the foundry building and machine shop.[151] Owners removed most outbuildings and structures, adding small features on occasion.

Integrity and National Register Eligibility. When the Stedman Foundry and Machine complex was listed on the National Register of Historic Places in 1996, it consisted of the three original sandstone buildings plus a modern office building (the latter non-contributing).[152] Recently, the foundry was destroyed by fire, leaving only the old pattern house and machine shop to stand. The loss of the foundry building did not change the National Register standing of the complex, which continues to be significant under Criteria A and C.

Kessler Brewery Bottle Dump (24LC1972)

Site 24LC1972 is presumed to have been the Kessler Brewery bottle dump. The heavy concentration of broken bottles and its proximity to the old brewery are indicative of that association (Figure 20). The site is located immediately north of Broadwater Avenue (formerly known as Kessler Road), within about 600 feet of the former brewery. It appears that the dump has been damaged on more than one occasion in the past, and what remains is just a small portion of the original feature.

History. Charles Beehrer started the Ten Mile Brewery near or at the site of the Kessler Brewery in 1864 or 1865. Nicholas Kessler, Beehrer's business associate, acquired the brewery within a short time, and grew it into the Kessler Brewery. Eventually the brewery came to market its beer across the state of Montana, that is until the enactment of prohibition in Montana in 1918. The brewery closed from 1918 to 1934. It subsequently re-opened, but suffered a number of setbacks over the years. Among the most devastating of those was increasing pressure from very large breweries which marketed their products nationwide and at a reduced price. The Kessler Brewery finally closed for good in 1957 or 1958.[153] Since the business closed, the building complex has been used mainly for beer and food warehousing, but also as an archery range.

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[150] Sanborn Fire Insurance Co., "Map of Helena, Montana, 1892, revised to 1927."

[151] Jiusto and Phipps, National Register Form for Stedman Foundry, sec. 7, p. 2.

[152] Ibid., Sec. 7, p. 1.

[153] Jon Axline, "Helena Breweries" (Helena: manuscript on file with author, n.d.); Paladin, "Nick Kessler's Brewery and Brickyard," 134-5.

Figure 20. View of Kessler Brewery bottle dump (24LC1972) exposed along edge of cut in foreground, with historic Kessler Brewery building complex in background, facing west.

Like many of its counterparts in Montana and across the United States, the Kessler Brewery included a bottling works with washing and labeling equipment. The works gave the brewery the opportunity to deliver its product regionally early on and thus to expand its business. When Kessler Brewery closed during prohibition, it is presumed that the bottling works closed as well because the company chose not to package and sell alternative products (such as soda).[154] After the end of prohibition, the beer business nationwide very gradually turned to cans rather than bottles for individual portions.[155] Although Kessler presumably reactivated its bottling works after prohibition (although at least for a while it packaged beer in cone-top cans), the plant almost certainly would have operated differently than it did prior to World War I. It seems likely that it reused only the brewery's own bottles rather than the wide variety of glass containers it handled earlier.

Description. The Kessler Brewery bottle dump is a dense concentration of bottle glass (Figure 21). It consists primarily of broken bottles with crown-cap finishes, dating between the late 1900s and 1930s. The site apparently consists of the waste bottles that Kessler collected to recycle, but later found to be damaged, incompatible with its equipment, or surplus.

[154] Axline, "Helena Breweries."

[155] Jack Martells, *The Beer Can Collector's Bible* (New York, Ballantine Books, 1976), 6-9.

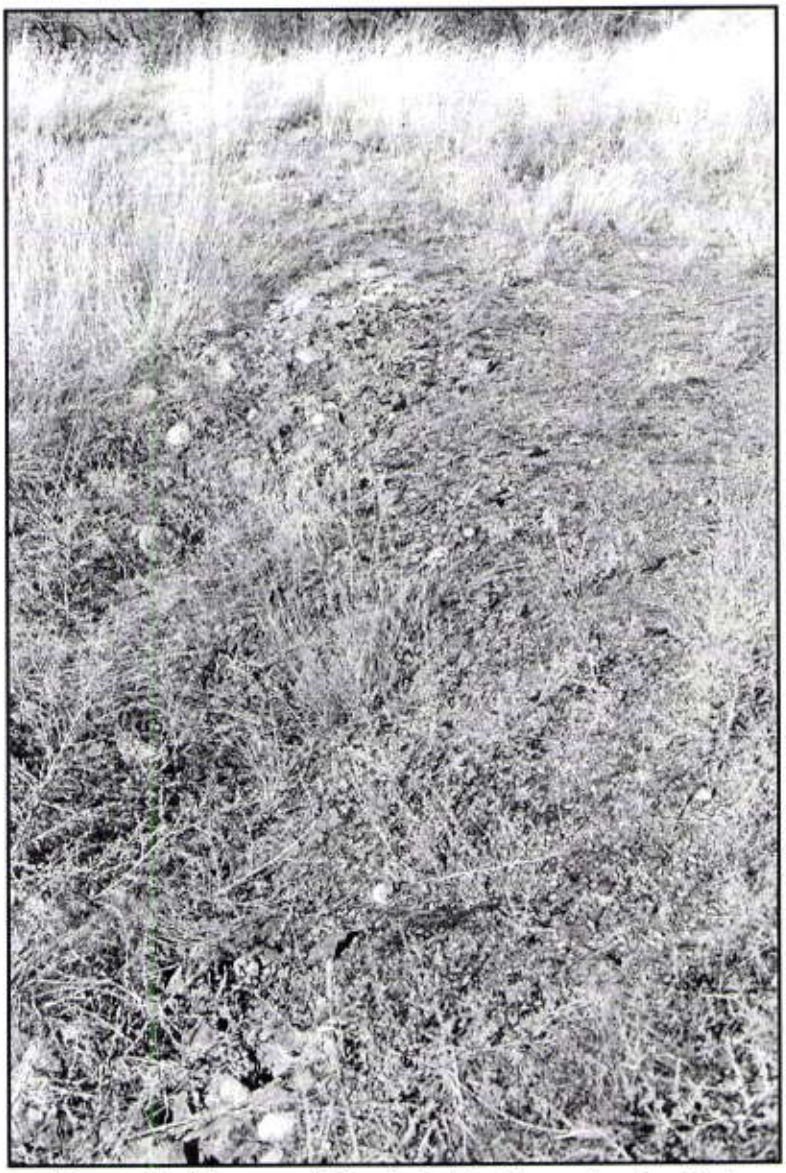

Figure 21. Close-up of Kessler bottle dump, showing high density of bottle fragments, facing north.

An estimated 95% of the bottle glass at the dump is aqua or brown in color, and originated with cylindrical bottles, many of which were quart-sized. Almost all of the observed finishes are machine-made, crown cap; less than 5% are applied crown cap finishes, the latter appearing in aqua and wine-bottle-green colors. The field crew observed only two finishes other than crown cap, these are two applied brandy-with-bead finishes.

Seven different manufacturer's marks indicate that bottles were dumped here as early as 1900 and as late as the mid-1930s or slightly later. Manufacturers include Streator Bottle & Glass (1881-1905), Massillon Bottle & Glass (ca. 1900-1904), William Franzen & Son (1900-1929), American Bottle Company (1905-1917), and Owens Illinois Glass (1936 or 1946).

Other than bottle glass, very few historic items lay in the dump. RTI observed a single cut nail and one or two pieces of electrical porcelain that pre-date the modern era.

The historic areal extent of the bottle dump is difficult to determine, given land use changes since the dump was abandoned. What remains, however, probably is but a small part of a once much larger bottle dump. Today, the feature is exposed on the ground surface and along a short drainage ditch, with most material being concentrated in an area of less than 400 square feet. The wall of the ditch, which is about 1 foot tall, exposes a solid glass midden with almost no dirt matrix. Feature depth is unknown. The former Helena Sand and Gravel pit lays immediately north of the feature, and it seems quite possible that a portion of the old dump was removed during pit use between the late 1920s and late 1950s. Another presumed source of disturbance is Broadwater Avenue. The date when the street was built is unknown, although it presumably post-dates abandonment of the Western Clay Manufacturing railroad spur which once followed roughly the same route (see above). Damage from street building and maintenance is evidenced by the position of a culvert which empties into the small drainage ditch mentioned above. The near-vertical wall in that part of the ditch near the road could represent culvert outlet cleaning. Finally, the proximity of the dump to Broadwater Avenue suggests that the bottles have been a highly-visible target for collectors.

Comparison with Other Brewery Bottle Dumps. Bottle dumps of this sort have been found as archaeological features at or near breweries in the western U.S. and Canada. For example, there is a large bottle dump on the banks of the Yukon River within 50 feet of the O'Brien Brewing and Malting Company's brewery in Klondike City, Yukon Territory.[156] Consisting of "175 cubic meters of densely packed glass fill and other artifacts,"

> ...this feature is interpreted as a dump that initially was formed in 1904 when bottles were widely collected from the Dawson City locale for use by the brewery. After sorting and retaining specimens of roughly equivalent type and closures, the remainder were discarded on the riverbank. ...the dump was used in subsequent years to dispose of bottles broken during handling, cleaning, and filling processes.[157]

A high percentage of the bottle finishes collected in a test unit at the O'Brien dump are of the crown cap type (78%) and most bottle shapes are cylindrical (circular; 96%).[158]

Researchers identified a similar bottle dump at the Boca Brewery site near Truckee, California. Operated from 1876 to 1896, the brewery was quickly dismantled after closing and today surface remains are scant, consisting of six archaeological features and a large artifact scatter. Among those is a large bottle dump measuring 175 feet long and 5-30 feet wide, positioned along a bluff above the Truckee River. Like others of its type, the dump includes thousands of bottle fragments in a wide range of colors.[159]

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[156] David V. Burley and Michael H. Will, "'The Beer that made Klondike Famous and Milwaukee Jealous': the O'Brien Brewing and Malting Company Site, Klondike City, Yukon," *The Journal of the Society for Industrial Archaeology* 26, no. 1: 46-48.

[157] Ibid., 46, 48.

[158] Ibid., 47.

[159] Jody L. Brown, "Archaeological Survey Report for the Proposed Interstate 80 Rehabilitation Project, Between Union Mills Overcrossing and Hinton Road, Nevada County, California" (Marysville: California Department of Transportation, 1999).

Integrity. The Kessler Brewery bottle dump lacks archaeological integrity of design and materials due to considerable damage over the years. Gravel pit operation, street construction and maintenance, and probably bottle collecting have removed significant portions of the dump. The feature's historic size cannot be determined, many bottles have been removed or covered over by paving, and all bottles are fragmentary. Based on the areal extent of two other bottle dumps reported in the literature, RTI estimates that just 15-20% of the historic dump remains in-place at 24LC1972.

National Register Eligibility. Site 24LC1972 is not National Register eligible because it lacks archaeological integrity. It appears to represent just a small fraction of the original dump. The artifacts, though often identifiable, are fragmentary. Because of the ground disturbance in the dump vicinity, it is difficult to determine if what remains is a true reflection of the entire dump as it was during the historic period.

Furthermore, the Kessler Brewery bottle dump cannot stand as a National Register-eligible archaeological property independent of its associated brewery. The archaeological value of historic breweries is often assessed by observing the totality of remaining brewery features. Generally, a bottle dump is not the sole remaining feature at a brewery having historic archaeological importance. In the case of the Kessler Brewery, RTI did not examine the entire historic brewery complex because it lays beyond the current project area. The general impression one has viewing it, however, is that evidence of other historic features around the standing brewery building has been lost due to subsequent land use. So, the loss of other historic and archaeological features at the Brewery renders the bottle dump ineligible.

SUMMARY

This summer, the Montana Department of Environmental Quality Mine Waste Cleanup Bureau intends to remove hazardous materials from the Spring Meadow Lake site at a park of the same name west of Helena. To insure that the agency complies with various federally-mandated regulations, it signed a task order with Renewable Technologies, Inc. (RTI) to perform three tasks: conduct a title search, prepare an owner/operator history, and complete a cultural resource investigation and evaluation.

RTI's title search revealed a complex ownership during the historic period. Subdivided parcels defined by metes and bounds were held by a variety of parties, many of which had no connection to the industrial activities centered on a 5-6 acre parcel at the south end of the site, known here as the foundry parcel. Consolidation of most parcels under a single owner eventually was accomplished in the mid-1940s when the land was used as a gravel pit.

Historic research, used in combination with the title search, identified a series of industrial operations at the site, beginning in 1892 with the Stedman Foundry and Machine Company's foundry. The foundry complex, which consisted of three substantial stone masonry buildings and a handful of smaller outbuildings, remained active until about 1902.

The next owner with an industrial interest was the Northwestern Metal Company, which had a test mill on-site employing the Baker-Burwell dry chlorination process. The company processed very little ore during its tenure, as it was having considerable difficulty in converting the process' success with small lots to major, full-scale production.

When the New York-Montana Testing and Engineering Company acquired the old foundry parcel in 1916, it became the first and only company to process any significant amounts of ore on-site. Placing its mill in the old foundry and molding building, the company handled both low-grade ores containing gold and silver, and manganese ores. Based on readily available sources, RTI estimates that New York-Montana Testing and Engineering treated 13,500 tons of manganese ores and 9,000 tons of sulphide ore. The company closed its plant in 1920.

George Jacoby and his Helena Sand and Gravel Company took over the old foundry parcel and its improvements in 1928. He gradually increased his holdings to include over 53 acres at the Spring Meadow Lake site, with much of the land occupied by his sand and gravel pit, ready-mix, and cold-mix asphalt operations. Jacoby used the old foundry buildings as his headquarters. In 1955, he agreed to sell the land and business to the Carson Construction Company.

Carson Construction ran the business in much the same way that Jacoby had. It closed its doors in Helena in 1964, however, and that closure marked the end of gravel pit work at the site.

Subsequent owners of the gravel pit (exclusive of the old foundry parcel) may have held the property under land speculation. Montana Powder and Equipment owned and occupied the small foundry parcel between 1964 and 1995, using the old buildings for sales and storage.

The State of Montana Department of Fish, Wildlife, and Parks received title to lands included in the Spring Meadow Lake site in 1981 and 2002. The old gravel pit property is now Spring Meadow Lake Park, while the foundry parcel and its improvements house the department's Montana Wildlife Center.

RTI's archaeological survey of relatively undisturbed portions of the Spring Meadow Lake site and examination of the records of previously-recorded cultural resources identified three historic sites there. These are the Western Clay Manufacturing spur of the Helena and Red Mountain Railroad (24LC1268), Stedman Foundry and Machine Company complex (24LC1273), and Kessler Brewery bottle dump (24LC1972). The railroad spur, located at the far southwest edge of the site, was built in the late nineteenth century to serve both the Western Clay brickworks and the Kessler Brewery. It has lost much of its historic integrity and is not considered eligible for National Register listing. The Stedman complex, at the south center part of the site and the only extant cultural property directly associated with industrial operations there, was listed on the National Register in 1996. Despite the loss of one of three contributing historic stone buildings, the property continues to be considered significant. The Kessler bottle dump, also at the south edge of the site, was associated with the Kessler Brewery, an important Helena business dating to the late nineteenth and first half of the twentieth centuries. The dump itself dates between 1900 and the 1930s or slightly later. Due to a loss of integrity, it is not National Register eligible.